RHODE ISLAND DEPARTMENT OF HEALTH

The Burden of Overweight and Obesity *in Rhode Island*

Donald L. Carcieri, Governor
David R. Gifford, MD, MPH, Director

State of Rhode Island
Department of Health
www.health.ri.gov

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STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
Department of Health

David R. Gifford, MD, MPH
Director of Health

Donald L. Carcieri
Governor

May 17, 2005

Dear Rhode Islanders,

It is with great pleasure that I present to you *The Burden of Overweight and Obesity in Rhode Island*, a summary of reports on Rhode Island's overweight/obesity burden, from the determinants of overweight and obesity to disparities in the burden of overweight and obesity. I sincerely hope that *The Burden of Overweight and Obesity in Rhode Island* proves useful to our community partners as they field new programs to control the consequences of obesity in our state.

I would like to thank all those who contributed to *The Burden of Overweight and Obesity in Rhode Island*, most especially Deborah Pearlman, PhD, John Fulton, PhD, and the entire staff of the Initiative for Healthy Weight Program for their extensive contributions to this report.

The Rhode Island Department of Health is firmly committed to maintaining and enhancing its obesity surveillance system, convinced that successful prevention and control efforts are founded on complete, accurate, and timely data. In this vein, we plan to revise *The Burden of Overweight and Obesity in Rhode Island* annually. We hope you find this first edition to be useful and provocative.

Sincerely,

David R. Gifford, MD, MPH
Director of Health

Acknowledgements

State of Rhode Island Department of Health

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EXCUTIVE SUMMARY

Overweight and obesity are among the most important new public health challenges facing our nation. Like the nation, Rhode Island has experienced substantial increases in overweight and obesity among all groups of residents. Such increases have profound effects on our state's health care system, since obesity is strongly associated with several chronic diseases including type 2 diabetes, cardiovascular disease, and asthma.

This report presents the most recent state data on overweight and obesity. Data show the proportion of children and adults who are overweight or obese, the factors important for prevention of weight gain and improvement in health and quality of life, and health outcomes related to overweight and obesity. It is hoped that annual updates of this report will facilitate the following:

- Ongoing monitoring of overweight/obesity and associated risks to better understand disparities based on age, gender, race/ethnicity, and socioeconomic status.
- Statewide planning for reducing the burden of overweight/obesity.
- Allocation of resources to test and evaluate intervention to reduce the prevalence of overweight/obesity in vulnerable populations.

INTRODUCTION

Overweight and Obesity: The Public Health Challenge

Overweight and obesity are among the most important new health challenges facing us today. The World Health Organization (WHO) has declared excess weight as one of the top ten health risks in the world and one of the top five in developed nations, including the U.S. (WHO 2003). The first challenge in addressing overweight and obesity is to standardize how we measure these conditions. The second challenge is to understand the scope of the problem. The third challenge is to identify groups at higher risk of being overweight and obese. The fourth challenge is to understand the health consequences of being overweight or obese.

Measuring Overweight and Obesity

Body mass index (BMI) is used to define overweight and obesity. It is a measure of weight in relation to height. Weight categories for adults are the same for women and men (NCCDPHP 2004a).

Definition

- Body Mass Index (BMI) = weight / height^2

  Where:

  - Weight is measured in kilograms
  - Height is measured in meters

Adults

BMI	Weight Status
< 18.5	Underweight
18.5 – 24.9	Normal
25.0 – 29.9	Overweight
30.0 +	Obese

Example

- An adult who is 5' 7" is obese at 192 pounds.
- An adult who is 5' 11" is obese at 215 pounds.

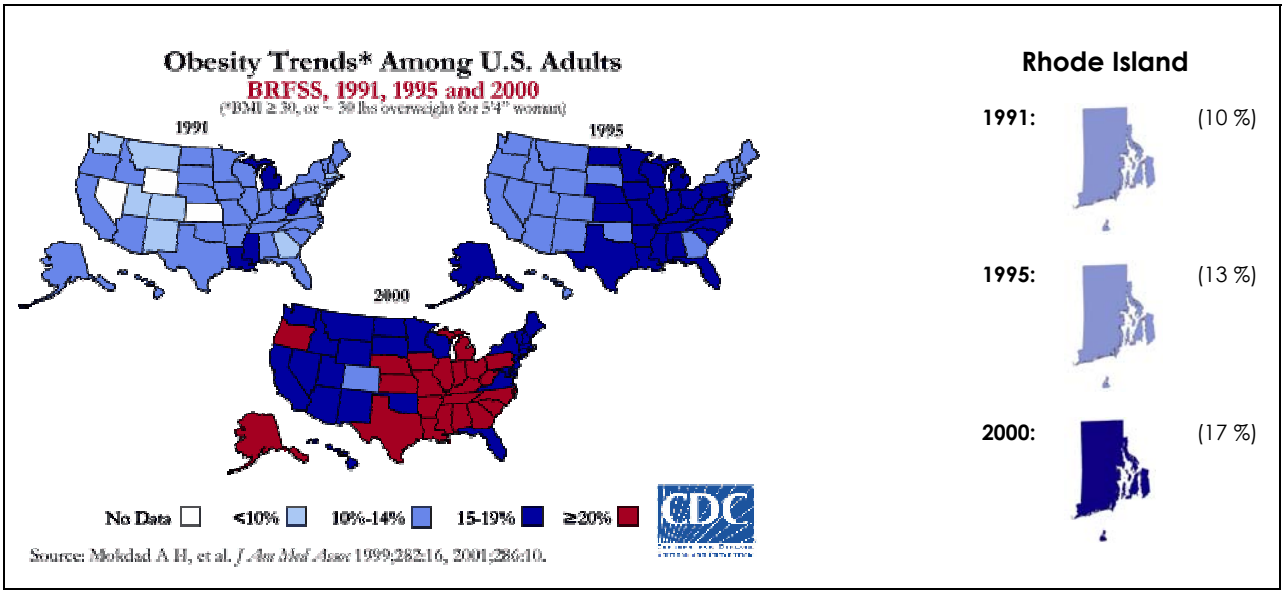
Note

- In children and adolescents ages 2- 20 years, cutoff criteria for weight status are based on sex- and age-specific BMI, using growth charts developed by the Centers for Disease Control and Prevention (CDC). To avoid social stigmatization, CDC classifies children and adolescents with BMI values between the 85th and 95th percentiles as "at risk for overweight" rather than "overweight" and those with BMI values at or above the 95th percentile as "overweight" rather than "obese.

See: NCHS 2004c.

Prevalence of Overweight and Obesity in the US

According to population-based U.S. surveys that rely on self-reported measures of height and weight, in 1991 no state reported that 20% or more of the adult population was obese (Body mass index [BMI] $\geq$ 30). By 2000, many states reported obesity rates of 20% or higher (Mokdad AH et al. 1999). Estimates based on self-reported data undoubtedly underestimate obesity prevalence. Thus, the burden of overweight/obesity among Rhode Islanders is probably greater than that shown for Rhode Island in the map below.



Since the late 1970s, the National Health and Nutrition Examination Survey (NHANES) has been conducting household interviews and physical examinations of nationally representative samples of the U.S. civilian, noninstitutionalized population. NHANES data from 1999 – 2000, based on clinical heights and weights, show that 64% of U.S. adults exceed the "normal" range for body mass index (defined as having a BMI > 25 kg/m3). See measuring overweight and obesity above. An estimated 64% of U.S. adults are either overweight or obese. (BMI > 30 kg/m3) (NCHS 2004a).

Obesity is an enormous public health threat for Americans of all ages. Given the high rate of obesity among young people, children and adolescents are at higher risk than ever before for diabetes and accompanying health problems (Dietz, 1998; Goran et al. 2003). Data from the 1999-2000 NHANES show that 15 percent of US children and youth ages 6-19 (almost 9 million) are overweight, triple the proportion observed in 1980 (Hedley AA et al., 2004; Ogden et al. 2002; NCHS 2004b). The prevalence of overweight and obesity has increased among all groups of children, but black and Mexican-American children and adolescents are disproportionately affected (Dietz 2004; Strauss et al. 2001). Among non-Hispanic white adolescents, those from lower income families have a greater prevalence of overweight compared with white adolescents from higher income families (Troiano RP et al. 1998). If current trends continue, the obesity epidemic will widen racial/ethnic disparities in health status.

Focus Rhode Island

The population of RI is becoming increasingly diverse. From 1990 to 2000, Rhode Island 's Hispanic population increased by 77% while the non-Hispanic white population decreased by 3% (U.S. Census, Rhode Island Census 2000). Today, there are 90,820 Hispanics living in RI comprising 8.7% of the total RI population, making this group the largest and one of the most diverse minority populations in the state. Persons of Puerto Rican origin form the largest Hispanic population in the state, followed by Dominicans and Colombians. Nearly 98% of Hispanics live in urban areas with the largest concentration of Hispanics living in Providence, Pawtucket and Central Falls. More than one-third (36%) live below the federal poverty line. Approximately 39% of Hispanics in Rhode Island over the age of five speak a language other than English in their homes (usually Spanish). The median age for the Hispanic/Latino population is 23.6 years, which is considerably younger than for the median age for the overall state population (36.7 years). Not surprisingly, nearly 90% of the Hispanic population is under the age of 50. (Rhode Island Department of Health 2004a).

With the recent growth in RI's Hispanic population, which is projected to continue to increase at a rapid rate in the coming decade, the state faces many challenges in reversing the upward trends in overweight and obesity. With acculturation come lifestyle practices typical of mainstream Americans—high calorie, low nutrition diets and sedentary lifestyles. Given the sociodemographics of RI's Hispanic population, the state's obesity epidemic will take a disproportionate toll on Hispanic children and adolescents. Both physical activity and dietary quality decline in adolescence and being at risk of overweight in the adolescent years has a very high risk of persisting into adulthood. Through schools, community organizations, business-based partners, and mass media campaigns, RI needs to implement culturally appropriate policies and programs for Hispanic youth and their families that promote and sustain physical activity on a regular basis and good nutrition.

Disparities in Prevalence

Although the burden of overweight/obesity is shared across the U.S. population, overweight and obesity are more common in some groups than in others (Mokdad et al. 1999; Mokdad et al. 2000; Mokdad et al. 2001a). Disparities in the prevalence of overweight/obesity help us understand which groups are most affected by the problem. According to recent NHANES data (1999-2000), disparities in the prevalence of overweight and obesity exist based on gender, age, socioeconomic status, and race/ethnicity (Flegal KM et al. 2002; US Department of Health and Human Services 2001).

Prevalence Greater	**Prevalence Lower**
• Low-income women (all races/ethnic groups) • Racial/ethnic minority women • Mexican-American men • Non-Hispanic white youth in low-income families	• Higher income women (all races/ethnic groups) • Non-Hispanic white women • Non-Hispanic white men or black men • Non-Hispanic white youth in higher income families

Source: U.S. Department of Health and Human Services. The Surgeon General''s Call To Action To Prevent and Decrease Overweight and Obesity 2001

Health Risks

Overweight and obesity have health risks. Among adults, both modest and large weight gains increase the risk of type II diabetes and heart disease (Ford et al. 1997). Obese adults are at risk for four of the ten leading causes of death in the U.S. – coronary heart disease, stroke, type II diabetes, and several forms of cancer (Must et al. 1999). An estimated 112,000 premature deaths a year may be attributable to obesity (Flegal et al., 2005).

Compared with white Americans, African Americans are at higher risk for heart failure and death from coronary heart disease, in part because blacks have a higher prevalence of smoking, hypertension, diabetes, obesity, and left ventricular hypertrophy (LVH) than whites (BlackHealthCare.com; NHLBI,1999).

Health Risks: Adults

- Type II diabetes
- Hypertension, heart disease, stroke
- High blood cholesterol
- Orthopedic problems, osteoarthritis
- Selected cancers
- Asthma

Health Risks: Adolescents

- Type II diabetes
- Hypertension, high blood lipids
- Orthopedic problems

Source: The Surgeon General's Call To Action To Prevent and Decrease Overweight and Obesity 2001

American children born in 2000 face an alarming one in three chance of developing type 2 diabetes. An estimated one third of all children, and about one-half of black and Hispanic children, born in 2000 will develop type II diabetes (Bloomgarden ZT. 2004; NCCDPHP 2004b). As this generation of children reaches adulthood, there will be a dramatic increase in physical complications associated with diabetes (e.g., heart disease, kidney failure, blindness; Winkleby et al. 1999l). Thus the rapid increase in overweight prevalence among U.S. children is likely to intensify long-term racial and ethnic disparities in health status among U.S. adults.

Racial Disparities in Obesity-related Diseases

Prevalence Greater		Prevalence Lower	
African Americans	[Hypertension, CVD]	Non-Hispanic whites	
Hispanics	[Type II diabetes]	Non-Hispanic whites	

Sources: NHLBI November 30 1999; NDIC May 2002

Health Costs

Obesity is costly. The total (direct and indirect) cost of obesity to the U.S. economy is staggering, about $100 billion annually (2002 dollars), more than five percent of national health expenditures (Finkelstein et al. 2003; Thompson et al. 2001). Most of this cost is attributable to type II diabetes, hypertension, and coronary heart disease (Wolf et al. 1998). The total cost of obesity to the RI economy is about $305 million annually, about five percent of the state's health expenditures (Finkelstein et al. 2004). About half of these costs are borne by Rhode Island's Medicaid ($89 million) and Medicare ($83 million) programs (Finkelstein et al. 2004).

Risk Factors

Many factors influence the risk of overweight and obesity, including genetics, metabolic factors, lifestyle choices, technological changes in U.S. society and environmental barriers to healthy lifestyle (French et al., 2001; Philipson et al. 2004). The primary cause of overweight and obesity is imbalance in energy (more calories consumed than expended, resulting in excessive body fat; Saris 2003). Therefore, physical inactivity and poor diet (one too rich in calories, usually poor in fruits and vegetables) may be considered determinants of overweight and obesity. Conversely, physical activity, and good diet (one moderate in calories and rich in fruits and vegetables), may be considered modifiers of overweight and obesity. Recent research also suggests that breastfed infants have a decreased risk of becoming overweight children and that the longer an infant is breastfed, the greater the protective effect (Grummer-Strawn et al., 2004).

Overweight and Obesity: 2010 Objectives

Healthy People 2010 is a systematic approach to improving health in communities across the nation (US Department of Health and Human Services 2000). Of 467 national objectives to improve the health of Americans by the year 2010, ten have been selected as top public health priorities, including reduced prevalence of overweight and obesity and increased prevalence of regular physical activity. Better nutrition is one of the nation's top 28 public health priorities. Increasing breastfeeding rates and duration is one of the main population-based, behavior change strategies for the prevention of childhood obesity and overweight.[1]

Healthy People 2010

By 2010:	U.S. Baseline	2010 Target	U.S. Current
• Reduce the proportion of adults who are obese.	23 % NHANES (1988-94)	15 %	31% NHANES (2001-02)
• Reduce the proportion of children and adolescents ages 6-19 years who are at risk of overweight or overweight.	11 % NHANES (1988-94)	5 %	32% NHANES (2001-02)
• Increase the percentage of mothers ever breastfeeding their infants	64% (1988)	75%	71% NIS (2003)
• Increase the percentage of mothers breastfeeding their infants at 6 months	29% (1988)	50%	36% NIS (2003)
• Increase the percentage of mothers breastfeeding their infants at 12 months	16% (1988)	25%	17% NIS (2003)

[1] US baseline and target goals for breastfeeding come from Healthy People 2010 Section 16-19. Increase the proportion of mothers who breastfed their babies. US current figures for breastfeeding come from CDC's 2003 National Immunization Survey (NIS).

Healthy Rhode Islanders 2010 has adapted Healthy People 2010 priorities to address local needs (Rhode Island Department of Health 2004b). Reduced prevalence of overweight and obesity, increased prevalence of regular physical activity, and better nutrition are among Rhode Island's top public health priorities.[2]

Healthy Rhode Islanders 2010

By 2010:	RI Baseline	2010 Target	RI Current
• Reduce the proportion of adults who are obese.	17% BRFSS (1998-00)	14 %	19 % BRFSS (2002)
• Reduce the proportion of children and adolescents who are at risk of overweight or overweight.	25% RI-HIS (2001)	10 %	25% RI-HIS (2001)

Rhode Island's Response to the Obesity "Epidemic"

Like the nation, RI has experienced substantial increases in overweight and obesity among all groups of residents. As noted, such increases have profound effects on our state' s health care system, since obesity is strongly associated with several chronic diseases including type 2 diabetes, cardiovascular disease, and asthma (Mokdad et al., 2001b; NIH 1998).

This report presents the most recent data on the prevalence of overweight and obesity in adults and children as well as risk factors important for prevention of weight gain and improvement in health and quality of life.

Annual updates of this report will facilitate the following:

- Ongoing monitoring of overweight/obesity and associated risks to better understand disparities based on age, gender, race/ethnicity, and socioeconomic status
- Statewide planning for reducing the burden of overweight/obesity
- Allocation of resources to test and evaluate interventions to reduce the prevalence of overweight/obesity, especially in vulnerable populations
- Long-term evaluation of program impact

In addition to Rhode Island's surveillance activities for overweight and obesity and associated risk factors, the RI Department of Health has been funded by the Centers for Disease Control (CDC) to establish the Initiative for a Healthy Weight Program (IWH). The program is designed to decrease the prevalence of, and rate of increase in obesity and overweight by targeting four key behavior changes:

1. Improving the nutritional quality of diets
2. Increasing physical activity
3. Decreasing television, videogame, and computer screen time
4. Increasing breastfeeding rates and duration

In 2005-2006, IWH will begin implementing state plan objectives in schools, worksites, community venues, and healthcare settings. By intervening at multiple levels, IHW hopes to reverse the current upward trends in overweight and obesity and achieve the target goals for overweight and obesity established by Healthy People 2010 over the next 10 years.

[2] Measurement of overweight and obesity in *Healthy Rhode Islanders 2010* is not comparable to *Healthy People 2010*. *Healthy Rhode Islanders 2010* uses self or proxy reported height and weight. *Healthy People 2010* uses clinical measurements of height and weight.

METHODS

Data

This report is based on six surveys maintained by the RI Department of Health. In addition, data from the CDC National Immunication Survey provided information on breastfeeding patterns in Rhode Island. Each data set has a different sample and method of data collection. As a result, findings for the same health outcome may differ across surveys.

RI Behavioral Risk Factor Surveillance Survey (RI BRFSS)

- *Purpose*. Annual telephone survey that monitors the prevalence of risk factors that contribute to the leading causes of sickness (morbidity) and death (mortality) among adults.
- *Data collection*. Each month for a calendar year. RI has participated in the BRFSS every year since 1984.
- *Sample*. Randomly selected adults ages 18 and older.

RI Youth Risk Behavior System (RI YRBSS)

- *Purpose*. Self-administered survey to monitor priority health risk behaviors that contribute to the major causes of death, disease, injury, and social problems among adolescents.
- *Data collection*. Surveys completed in 1997, 2001 and 2003. The next RI YRBSS is scheduled for 2005.
- *Sample*. Random sample of high school classrooms statewide. Students from selected classrooms complete the RI YRBSS questionnaire on their own during one class period.

RI Women, Infants and Children (WIC) Program Data

- *Purpose*. Collect clinical data on WIC participants for assessment, eligibility, and policy development
- *Data collection*. Daily
- *Sample*. All WIC participants and their children

RI Pregnancy Risk Assessment Survey (PRAMS)

- *Purpose*. Improve the health of mothers and infants by reducing poor pregnancy outcomes such as low birth weight, infant mortality and morbidity, and maternal morbidity.
- *Data collection*. Each month for a calendar year
- *Sample*. Women who recently gave birth

RI Hospital Discharge Data (RI HDD)

- *Purpose*. Hospital licensure regulations require all hospitals to report data on all patients discharged.
- *Data collection*. Ongoing
- *Sample*. All persons, regardless of residency, who are admitted to RI hospitals as inpatients.

Death Records (RI Vital Records)

- *Purpose*. RI law RIGL 23-3-16 requires registration of all death records, from which data are derived.
- *Data collection*. Ongoing
- *Sample*. All persons who die in RI and all RI residents who have died out of state.

Health Outcomes

This report examines specific outcomes for adults and youth. These outcomes are shown below.

Outcomes: Adults

- Overweight
- Obesity
- Poor nutrition
- Physical inactivity
- Obesity-related diseases

Outcomes: Youth

- At risk of overweight
- Overweight
- Poor nutrition
- Physical inactivity
- TV viewing
- Breastfeeding (during infancy)

Definitions of Outcomes

Overweight/obesity. In the RI BRFSS and RI YRBSS, overweight and obesity are calculated from self-reported heights and weights (See **Measuring Overweight and Obesity** on page 8).

Poor nutrition. We measure poor nutrition as not eating five fruits and vegetables a day. Responses to six dietary questions are used to construct a summary index of fruit and vegetable consumption. The time frame for adolescents is the past 7 days. The time frame for adults is per day, per week, per month, or per year.

Physical inactivity. We measure physical inactivity in adults as a "no" response to the question: *During the past month, other than your regular job, did you participate in any physical activities or exercises, such as running, calisthenics, golf, gardening, or walking for exercise*? For adolescents, we measure physical inactivity as not meeting national youth guidelines for physical activity in past week (e.g., not doing any moderate exercise or physical activity for at least 20 minutes on 5 of the past 7 days, or not doing any vigorous exercise or physical activity for at least 30 minutes on 3 of the past 7 days).

Television viewing. For adolescents, we measure television viewing based on responses to whether or not they watched 3 or more hours of TV a week on an average school day.

Breastfeeding during infancy. We measure breastfeeding based on mothers' responses to whether they ever breastfed their infant, breastfed their infant for six months or breastfed their infant for 12 months.

Obesity-related diseases. We look at health risks associated with obesity and show the proportion of RI adults that have type II diabetes, high blood pressure, high blood cholesterol, hypertension, heart disease, stroke, osteoarthritis, gallbladder disease, and site-specific cancers. These include cancer of the gallbladder, colon, endometrium, kidney, esophagus, ovary, pancreas, and postmenopausal breast cancer.

Social Mapping

The RI Department of Health, Division of Disease Prevention and Control, Epidemiology Unit applies a framework called "social mapping" to state-level data in order to identify who is most likely have a chronic health problem or be at risk for chronic disease. Social mapping divides the state's population into multiple consumer groups, defined by age, gender, socioeconomic status (SES), race/ethnicity, and residence in a core city. Each of these subpopulations is defined below.

Age. RI adults are divided into three age groups: 1) 18-44; 2) 45-64; and 3) 65 and older. RI youth are divided by grade (9^{th} – 12^{th} grades).

*Gende*r. Rhode Islanders are divided into men and women.

Socioeconomic status. Socioeconomic status (SES) is based on family income and the number of people in a family. From this information the RI population is divided into two groups. Persons in the high SES group have family incomes >200% of the federally defined poverty level. Persons in the low SES group have family incomes $\leq$ 200% of the federally defined poverty level.

Race/ethnicity. Rhode Islanders are divided into three racial/ethnic groups: 1) Black, non-Hispanic, 2) White, non-Hispanic, and 3) Hispanic. Preliminary analysis of Rhode Island's youth population data yielded too few cases of Black adolescents to make reliable estimates for Black youth. Data on youth compare whites and Hispanics.

Residence in a core city. Rhode Islanders who live in Central Falls, Newport, Pawtucket, Providence, West Warwick, and Woonsocket are residents of a core city. A core city is an urban area that is economically distressed. Residents in core cities are compared to Rhode Islanders who live in the remainder of the state.

Social mapping by age, gender, socioeconomic status (SES), race/ethnicity, and residence in a core city is a valuable tool for identifying **burden** and **disparities**.

Burden and Disparities

The data presented show the following:

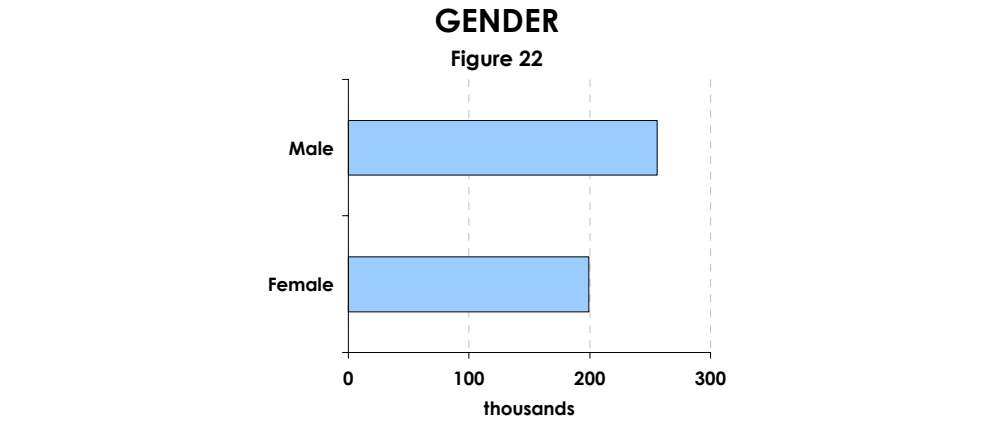
- ***Burden.*** The estimated number of people who have a specific health condition or health behavior. This is also called "absolute burden."
- ***Prevalence.*** The percentage of people who have a specific health condition or health behavior. This is also called "relative burden."
- ***Disparities.*** Comparisons of the percentage of people who have a specific health condition or health behavior in one subgroup with the percentage of people who have the same health condition or health behavior in another subgroup. Tests of statistical significance are only applied to measures of disparities.

How do we calculate burden?

To calculate burden we estimate the number of state residents in a sub-population who have a specific health condition or health behavior. Table 5 (below) shows that in 2002 an estimated 256,244 RI men and an estimated 199,308 RI women were overweight or obese. The magnitude of the problem is shown in the length of the bars in each figure. The longer the bar, the higher the burden of the health condition or health problem.

Table 5. Estimated number of RI adults ages 18 and older who are overweight or obese by gender, 2002

 # (1000's) BRFSS



Source: 2002 RI BRFSS

How do we calculate prevalence?

To calculate prevalence we take the number of people in a subgroup who have a specific health condition or health behavior and divide that number by the total number of people in that subgroup. For example, if 50,000 RI men are obese and there are 500,000 men in RI then we would say that 10% of RI men are obese (50,000/500,000). Put another way, the prevalence of obesity among RI men is 10%.

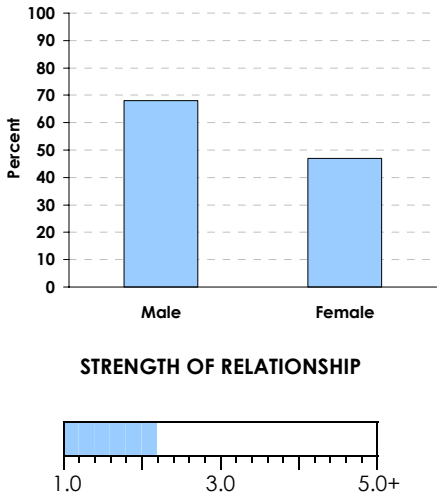
Table 6 (next page) shows that 68% of men and 47% of women ages 18 and older are overweight or obese. The higher the bar, the higher the prevalence. We use statistical tests to see if the difference in overweight/obesity in women and men is meaningful and statistically significant.

Table 6. Estimated percentage of Rhode Island adults ages 18 and older who are overweight or obese by gender, 2002

% **BRFSS**

GENDER

Figure 27



Source: 2002 RI BRFSS

What is an odds ratio?

In this report we determine if the difference in the prevalence of a health condition or health behavior across groups is meaningful and statistically significant by calculating an odds ratios. An odds ratio compares the likelihood of one group having a health condition or health behavior (i.e., men who are overweight or obese), with the likelihood of another group having the same health condition or health behavior (i.e., women who are overweight or obese). In this report, we always compare the group that has the highest prevalence (highest bar in a figure) with the group that has the lowest prevalence (lowest bar in a figure). The group with the lowest prevalence is called the reference group. If a figure shows three bars, for example, one bar for ages 18-44 years, one bar for ages 45-64 years, and one bar for age 65 and older, the odds ratio compares the group with the highest prevalence to the group with the lowest prevalence or reference group.

Underneath figures in this report there is a scale with hatched shading. The scale displays the estimated odds ratio. In this report we use a scale from 1.0 to 5.0 to show if the strength of association between a health condition or health behavior and the groups being compared is weak, moderate, or strong. An odds ratio of 1.00 indicates that there is no difference across the groups being compared. An odds ratio > 1.00 shows a disparity. In the figure above, the odds ratio is slightly more than 2.0. An odds ratio of 2.0 suggests that difference between women and men in the prevalence of overweight and obesity is modest. The strength of association is only moderately strong.

Strength of Association of Odds Ratios

Weak: ~1.5	Moderate: ~3.5	Strong : 5.0+

Analysis

Descriptive statistics (frequencies and crosstabs) were done for all outcomes of interest. Analyses of the RI BRFSS and RI YRBSS used weighted data to account for the complex design of these surveys. In contrast, the RI HDD and Vital Record data are not weighted because these data sets are actual cases.

An odds ratio was calculated by dividing the odds of having a specific health outcome in one group by the odds of having that same health outcome in another group. In the previous example, 68% of RI men and 47% of RI women are overweight or obese. Thus, 32% of men and 53% of women are not overweight or obese. The odds of a man being overweight or obese are two (68/32 = 2.1). There are two (2.0) times as many men who are overweight/obese as men who are not overweight/obese. The odds of a women being overweight or obese are less than 1.00 (47/53 = .88). If we want to know how much more the chance of being overweight/obese is for men (2.0) compared to women (.88), we compute an odds ratio, which is 2.4 (2.1/.88). Thus the odds of being overweight/obese for men are 2.4 times greater than for women.

Disparities and odds ratios are not calculated if the number of people with a health condition or health behavior is less than 5 or the number of people in a demographic group is less than 50.

Figures showing disparities based on data from the RI BRFSS and RI YRBSS use a scale from 0 to 100%. Figures showing disparities based on data from RI HDD and Vital Records data use a scale from 0 to 10%.

FINDINGS - ADULTS

Prevalence of Overweight and Obesity: Surveillance Data from the Rhode Island Behavioral Risk Factor Surveillance Survey (RI BRFSS)

Overweight: Burden

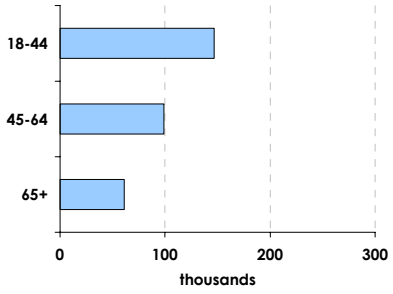
In 2002, an estimated 300,000 RI adults ages 18 years and older were overweight, based on a body mass index ≥ 25.0 to ≤ 29.0, about 127,000 females and 184,000 males. Among men, the burden of overweigh is higher in the low socioeconomic group than in the high socioeconomic group. The burden of overweight is also higher for Rhode Islanders who are ages 18-44 years, who are white, and who do not live in a core city.

Table 1. Estimated number of Rhode Island adults ages 18 and older who are overweight by age, gender, SES, race/ethnicity, and residence in core city, 2002

 # (1000s) BRFSS

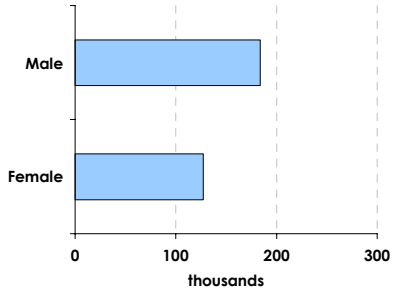
AGE

Figure 1



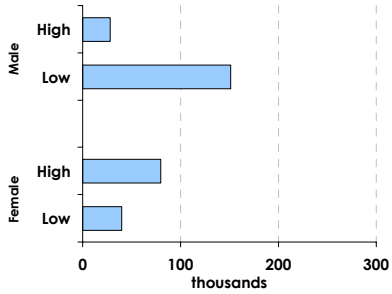
GENDER

Figure 2



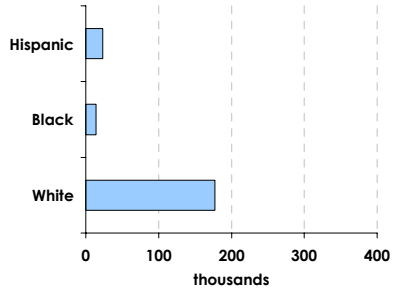
SES

Figure 3



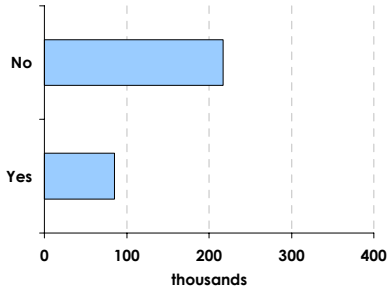
RACE/ETHNICITY

Figure 4



CORE CITY

Figure 5



Note: See Methods page 16 for definitions of higher SES and lower SES and core city.
Source: 2002 RI BRFSS

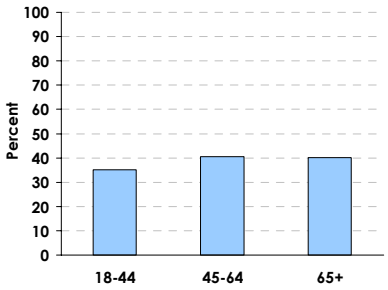
Overweight: Disparities

Overweight in adults is more common among men than women. Disparities in overweight prevalence also exist based on socioeconomic status with men of high socioeconomic status more likely to be overweight than men of low socioeconomic status.

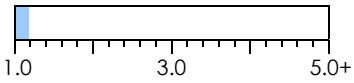
Table 2. Estimated percentage of Rhode Island adults ages 18 and older who are overweight, by age, gender, SES, race/ethnicity, and residence in core city, 2002 **%** **BRFSS**

AGE

Figure 6

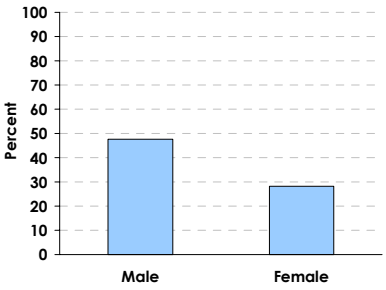


STRENGTH OF ASSOCIATION

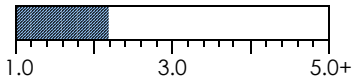


GENDER

Figure 7

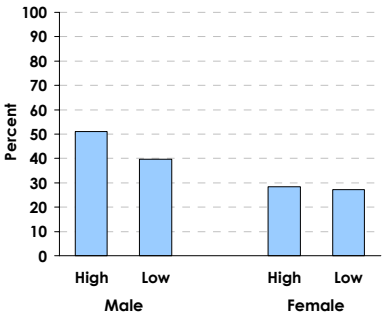


STRENGTH OF ASSOCIATION

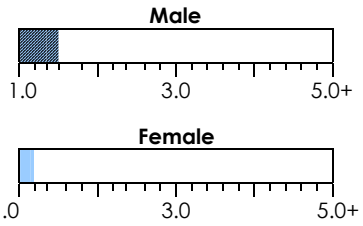


SES

Figure 8

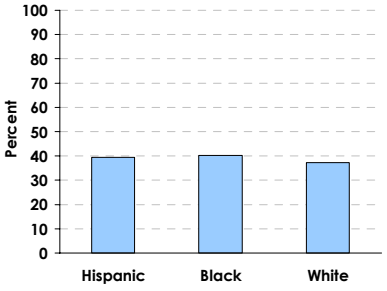


STRENGTH OF ASSOCIATION

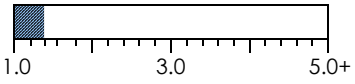


RACE/ETHNICITY

Figure 9

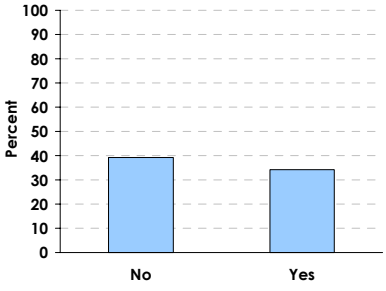


STRENGTH OF ASSOCIATION

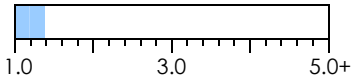


CORE CITY

Figure 10



STRENGTH OF ASSOCIATION



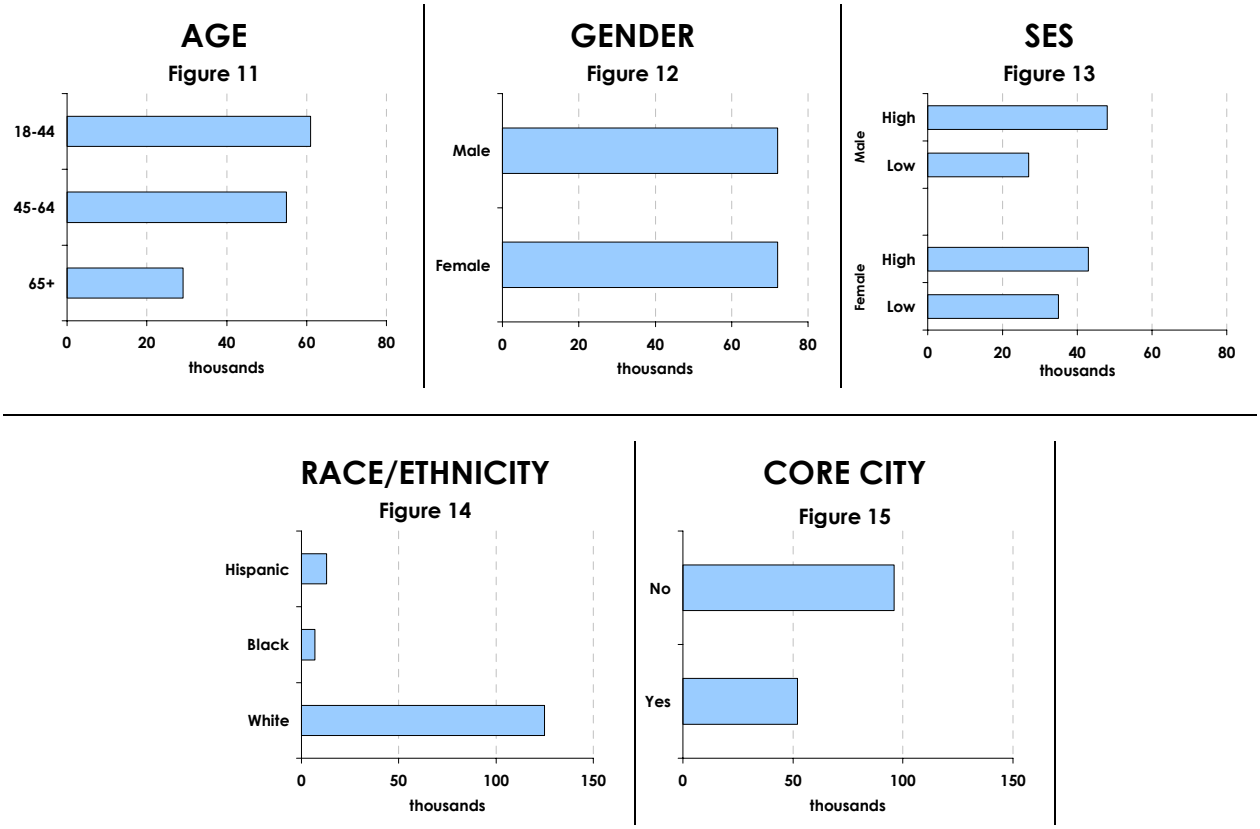
Note: See Methods page 16 for definitions of higher SES and lower SES and core city.
An odds ratio measures the strength of association where ~1.5 is weak, ~3.5 is moderate, and 5.0+ is strong.
Source: 2002 RI BRFSS

Obesity: Burden

In 2002, an estimated 144,000 RI adults ages 18 years and older were obese, based on a body mass index ≥ 30.0, about 72,000 females and 72,000 males. Among men, the burden of obesity is higher in the high socioeconomic group than in the low socioeconomic group. The burden of obesity is also higher for Rhode Islanders who are under age 65, who are white, and who do not live in a core city.

Table 3. Estimated number of Rhode Island adults ages 18 and older who are obese, by age, gender, SES, race/ethnicity, and residence in core city, 2002

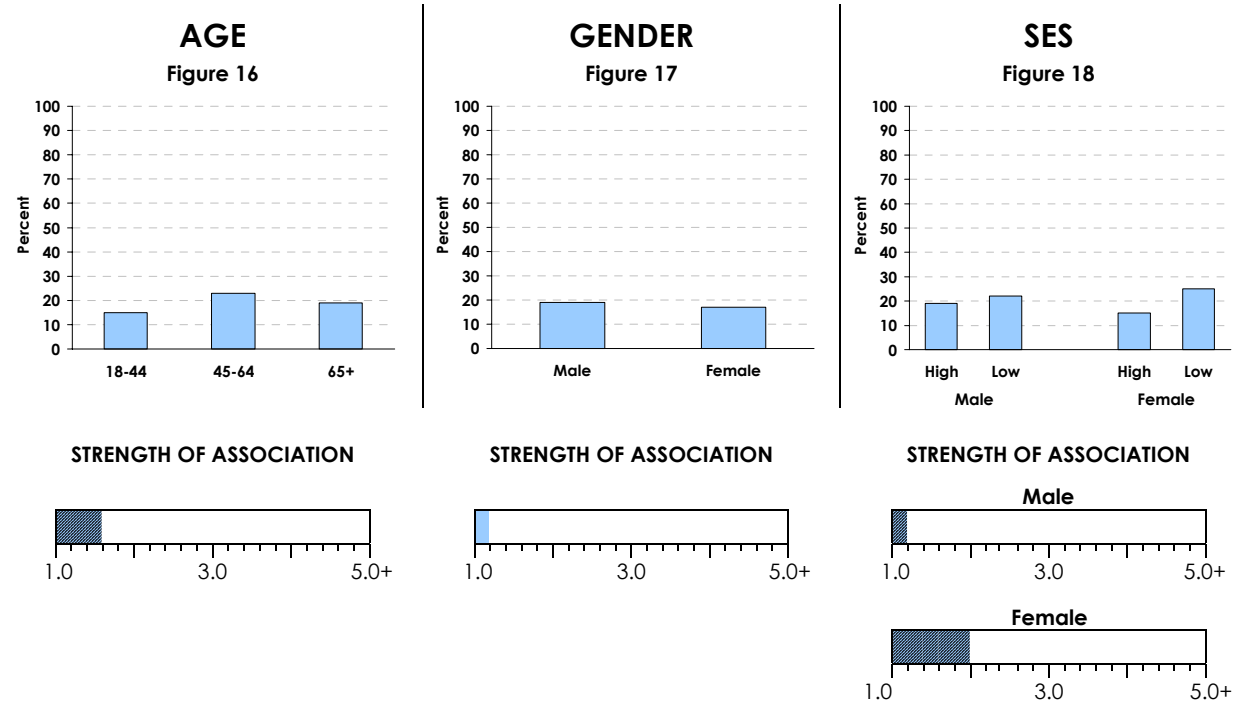
 # (1000s) BRFSS

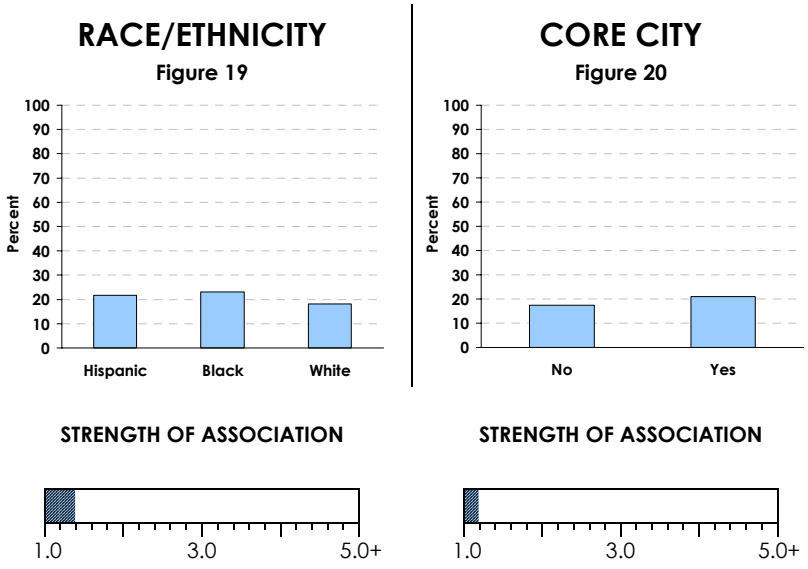


Note: See Methods page 16 for definitions of higher SES and lower SES and core city.
Source: 2002 RI BRFSS

Obesity in adults is more common among low-income women than other population subgroups.

Table 4. Estimated percentage of Rhode Island adults ages 18 and older who are obese, by age, gender, SES, race/ethnicity, and residence in core city, 2002 **%** **BRFSS**





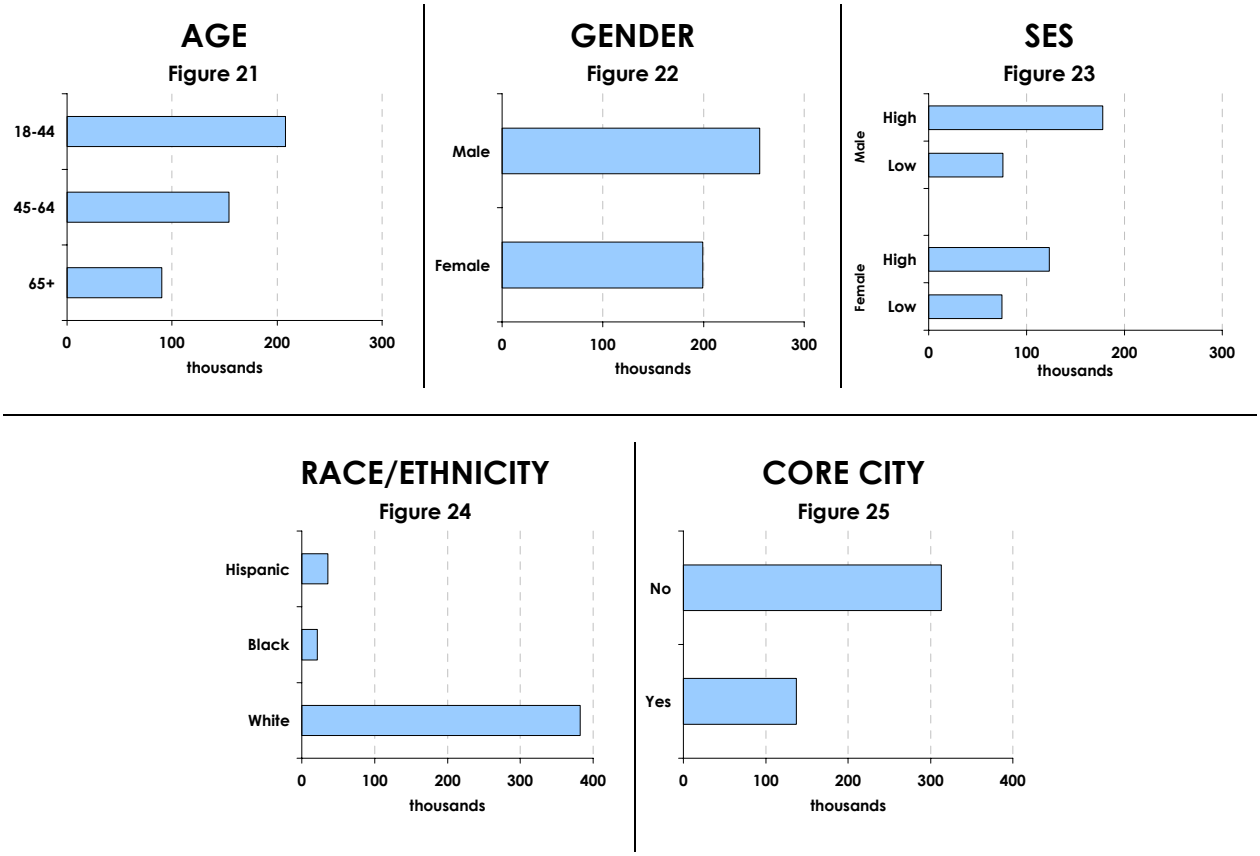
Note: See Methods page 16 for definitions of higher SES and lower SES and core city.
An odds ratio measures the strength of association where ~1.5 is weak, ~3.5 is moderate, and 5.0+ is strong.
Source: 2002 RI BRFSS

Overweight and Obesity: Burden

In 2002, an estimated 450,000 RI residents were overweight or obese, based on a body mass index ≥ 25.0, about 199,000 women and 256,000 men. The burden of overweight and obesity is higher for Rhode Islanders who are ages 18-44, male, who are white, and who do not live in a core city.

Table 5. Estimated number of Rhode Island adults ages 18 and older who are overweight or obese by age, gender, SES, race/ethnicity, and residence in core city, 2002

 # (1000s) BRFSS



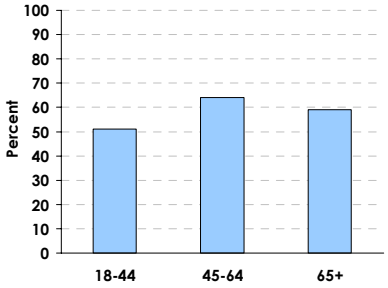
Note: See Methods page 16 for definitions of higher SES and lower SES and core city.
Source: 2002 RI BRFSS

Overweight and obesity are more common among those ages 45-64, men, and low-income women, but disparities are small (Bars on scales < 2.0). In contrast, men are nearly 2.5 times as likely as women to be overweight/obese.

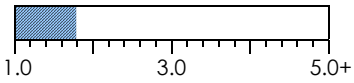
Table 6. Estimated percentage of Rhode Island adults ages 18 and older who are overweight or obese by age, gender, SES, race/ethnicity, and residence in core city, 2002 **% BRFSS**

AGE

Figure 26

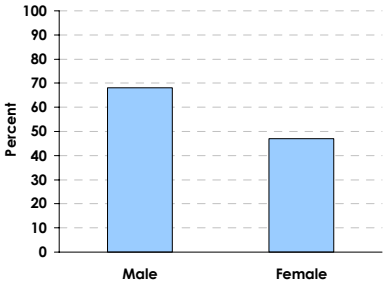


STRENGTH OF ASSOCIATION

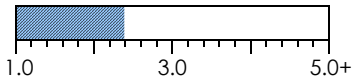


GENDER

Figure 27

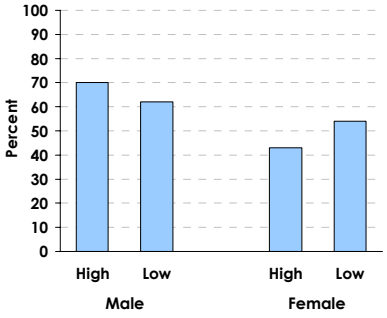


STRENGTH OF ASSOCIATION

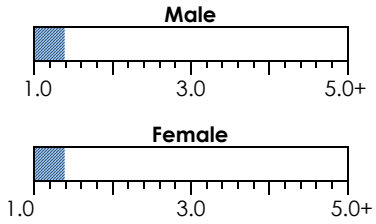


SES

Figure 28

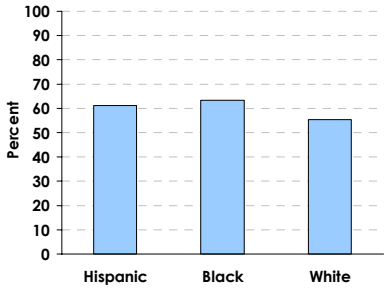


STRENGTH OF ASSOCIATION

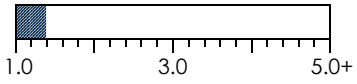


RACE/ETHNICITY

Figure 29

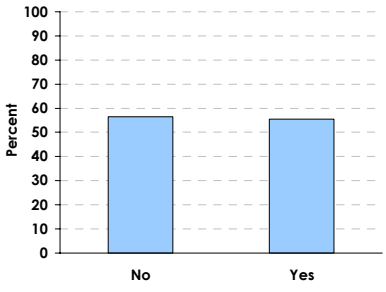


STRENGTH OF ASSOCIATION

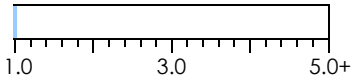


CORE CITY

Figure 30



STRENGTH OF ASSOCIATION



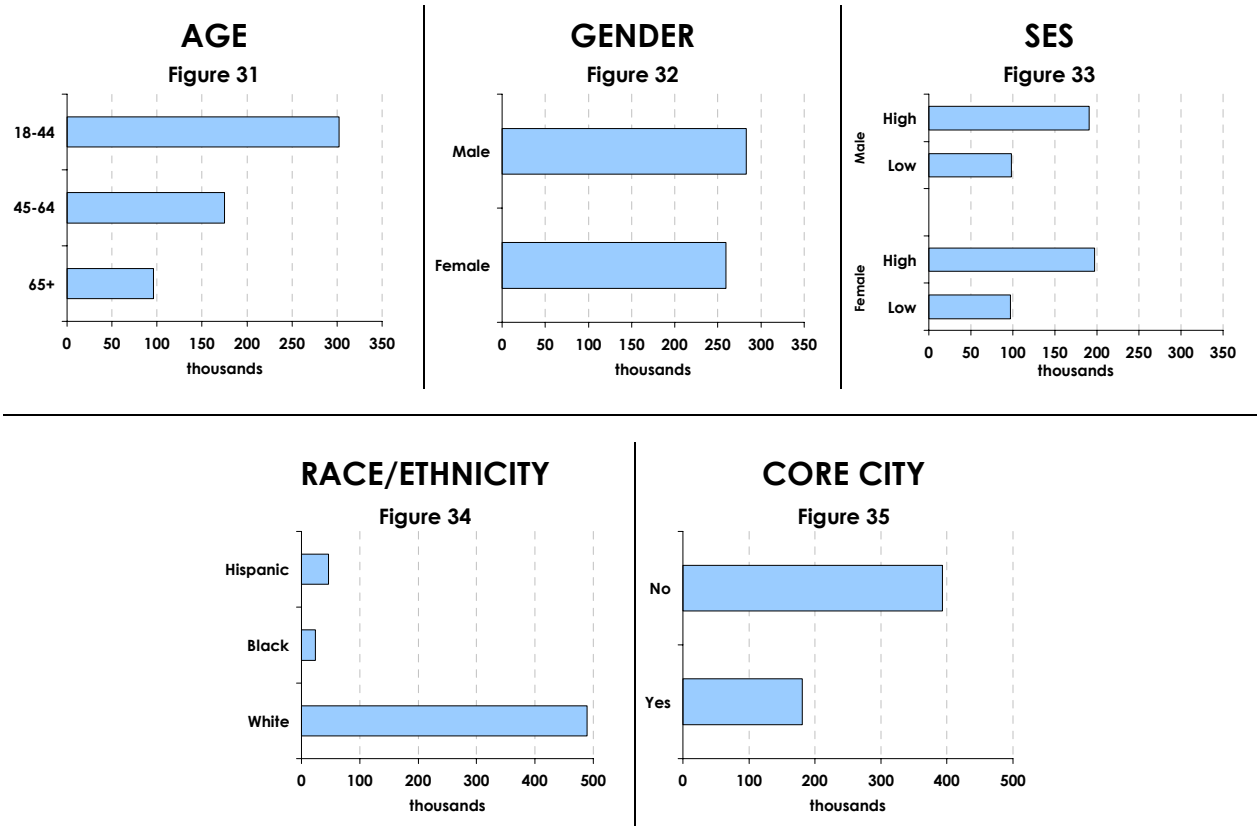
Note: See Methods page 16 for definitions of higher SES and lower SES and core city.
An odds ratio measures the strength of association where ~1.5 is weak, ~3.5 is moderate, and 5.0+ is strong.
Source: 2002 RI BRFSS

Poor Nutrition: Burden

In 2002, and estimated 569,000 Rhode Islanders reported that they ate fewer than five servings of fruits and vegetables a day (data not shown). A majority of adults who consume less than five fruits and vegetables a day are under age 45, white, and do not live in a core city.

Table 7. Estimated number of Rhode Island adults ages 18 and older who eat fewer than five servings of fruits and vegetables daily, by age, gender, SES, race/ethnicity, and residence in core city, 2002

 # (1000s) BRFSS



Note: See Methods page 16 for definitions of higher SES and lower SES and core city.
Source: 2002 RI BRFSS

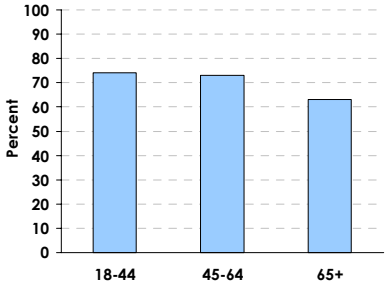
Most Rhode Islanders do not eat five fruits and vegetables a day. Inadequate intake is more common among those ages 45-64 and among men in low SES families. Disparities based on age, gender, SES, race, and residence in a core city are modest (Bars on scales < 2.0).

Table 8. Estimated percentage of Rhode Island adults ages 18 and older who eat fewer than five servings of fruits and vegetables daily, by age, gender, SES, race/ethnicity, and residence in core city, 2002

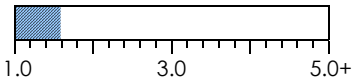
% **BRFSS**

AGE

Figure 36

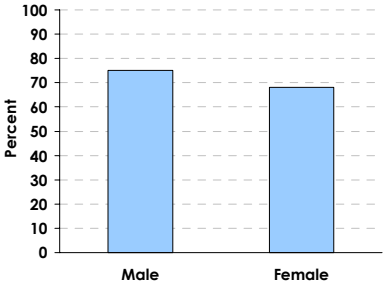


STRENGTH OF ASSOCIATION

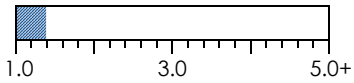


GENDER

Figure 37

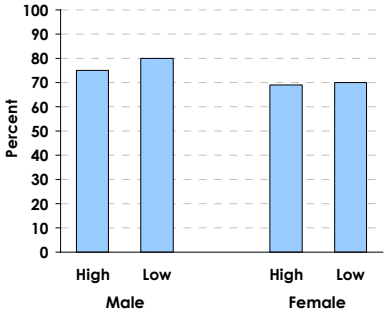


STRENGTH OF ASSOCIATION

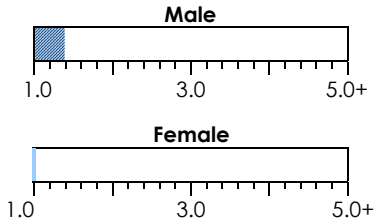


SES

Figure 38

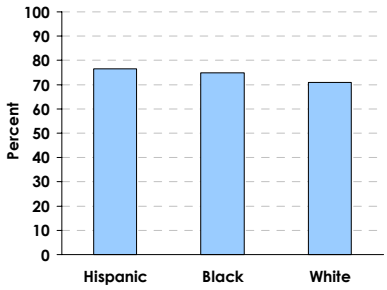


STRENGTH OF ASSOCIATION

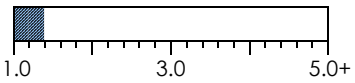


RACE/ETHNICITY

Figure 39

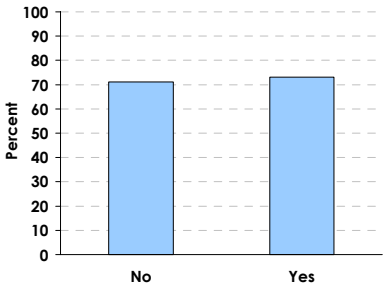


STRENGTH OF ASSOCIATION

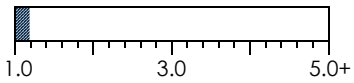


CORE CITY

Figure 40



STRENGTH OF ASSOCIATION



Note: See Methods page 16 for definitions of higher SES and lower SES and core city.
An odds ratio measures the strength of association where ~1.5 is weak, ~3.5 is moderate, and 5.0+ is strong.
Source: 2002 RI BRFSS

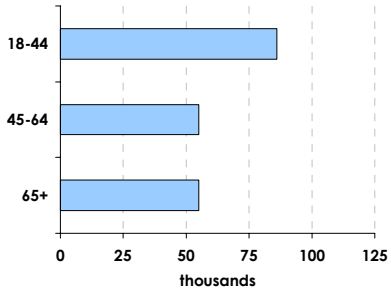
In 2002, an estimated 200,000 Rhode Islanders ages 18 and older did not do any exercise in the past month (data not shown). The number of Rhode Islanders reporting a sedentary lifestyle is higher for adults ages 18-44, women, whites, and persons not living in a core city.

Table 9. Estimated number of Rhode Island adults ages 18 and older who did not do any exercise in the past month, by age, gender, SES, race/ethnicity, and residence in core city, 2002

 # (1000s) BRFSS

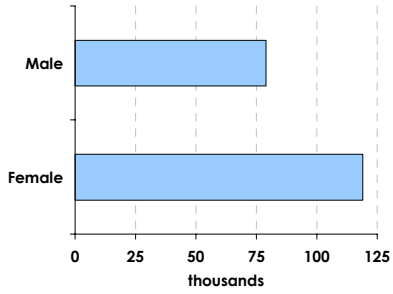
AGE

Figure 41



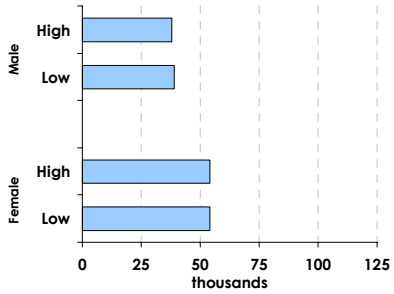
GENDER

Figure 42



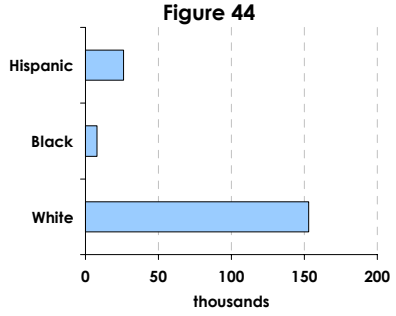
SES

Figure 43



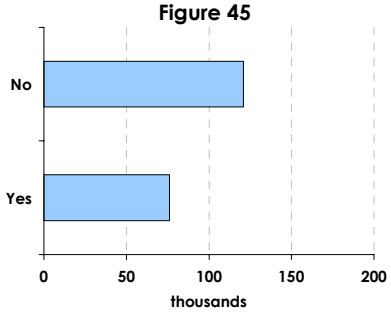
RACE/ETHNICITY

Figure 44



CORE CITY

Figure 45



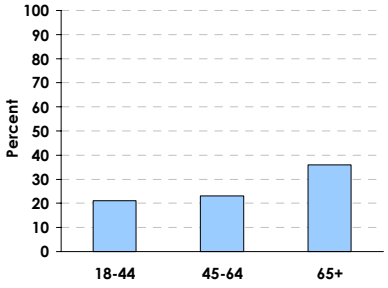
Note: See Methods page 16 for definitions of higher SES and lower SES and core city.
Source: 2002 RI BRFSS

Rhode Islanders age 65 and older are less likely to report any exercise in the past month than those ages 18-44. Compared to high SES groups, low SES groups are more sedentary. Hispanics are about twice as likely to be sedentary as whites.

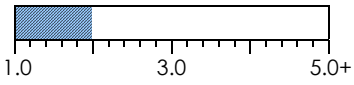
Table 10. Estimated percentage of Rhode Island adults ages 18 and older who did not do any exercise in the past month, by age, gender, SES, race/ethnicity, and residence in core city, 2002 **% BRFSS**

AGE

Figure 46

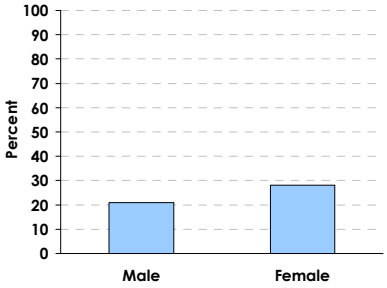


STRENGTH OF ASSOCIATION

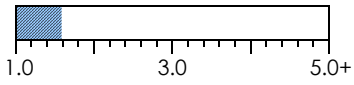


GENDER

Figure 47

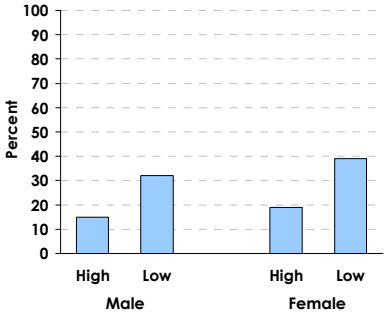


STRENGTH OF ASSOCIATION

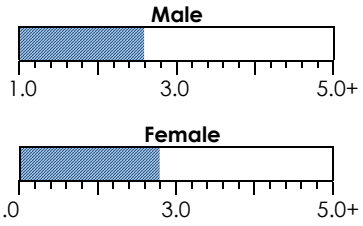


SES

Figure 48

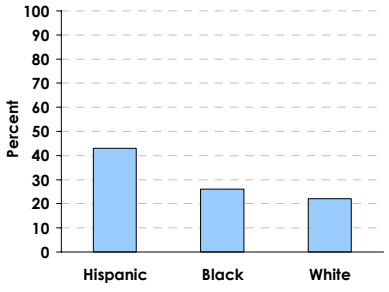


STRENGTH OF ASSOCIATION

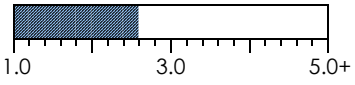


RACE/ETHNICITY

Figure 49

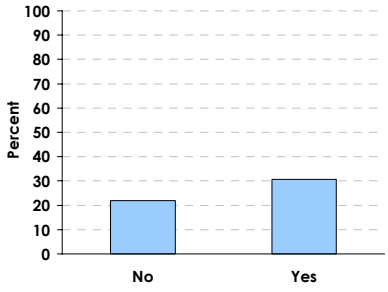


STRENGTH OF ASSOCIATION

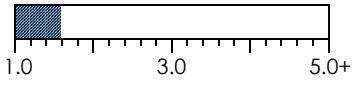


CORE CITY

Figure 50



STRENGTH OF ASSOCIATION



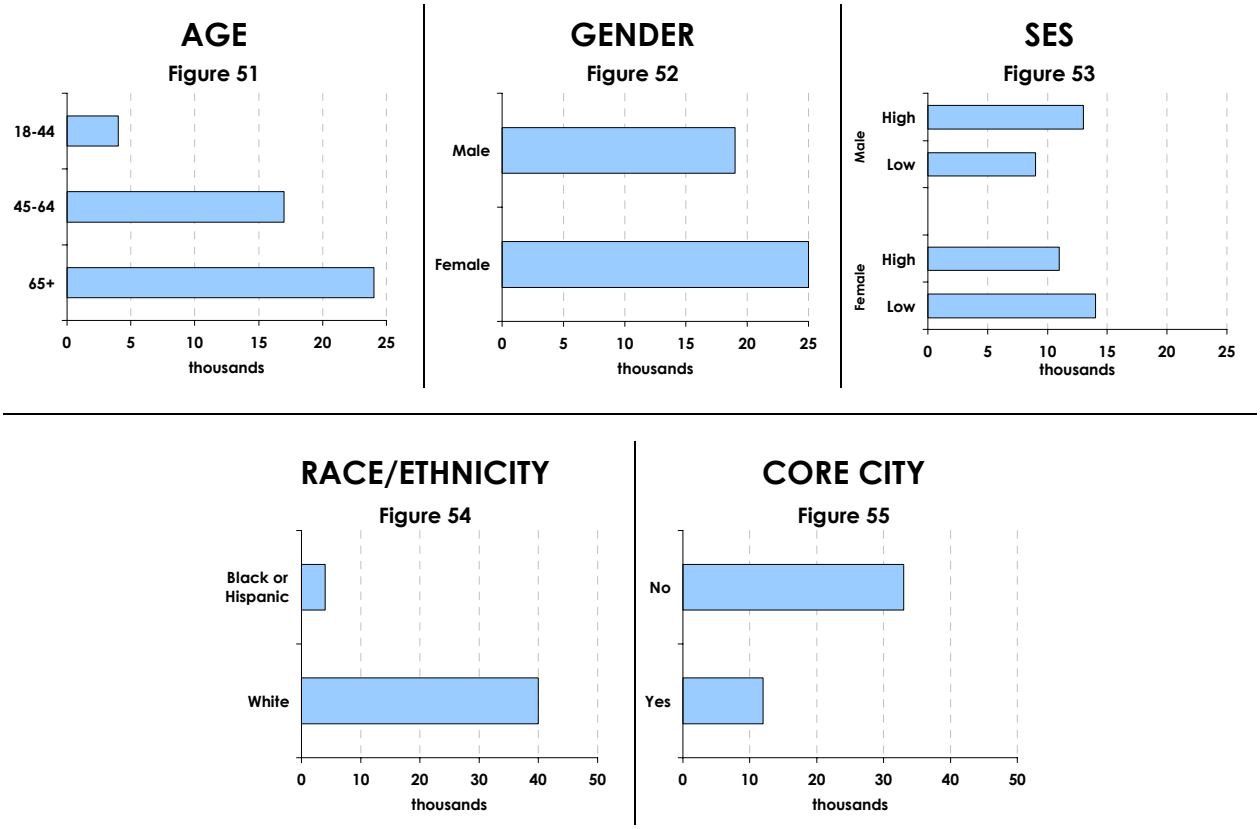
Note: See Methods page 16 for definitions of higher SES and lower SES and core city.
An odds ratio measures the strength of association where ~1.5 is weak, ~3.5 is moderate, and 5.0+ is strong.
Source: 2002 RI BRFSS

Diabetes: Burden

Estimates of the burden of diabetes in the 2002 BRFSS show that approximately 48,000 Rhode Islanders have medically diagnosed diabetes (data not shown). The number of Rhode Islanders with diabetes is higher for those ages 65 and older, women, whites, and persons not living in a core city. In this graph we compare whites and racial/ethnic minorities because the small number of black Rhode Islanders with self-reported doctor-diagnosed diabetes (n = 2) is too small to make reliable estimates.

Table 11. Estimated number of Rhode Island adults ages 18 and older who have been informed by a medical provider that they have diabetes, by age, gender, SES, race/ethnicity, and residence in core city, 2002

 # (1000s) BRFSS



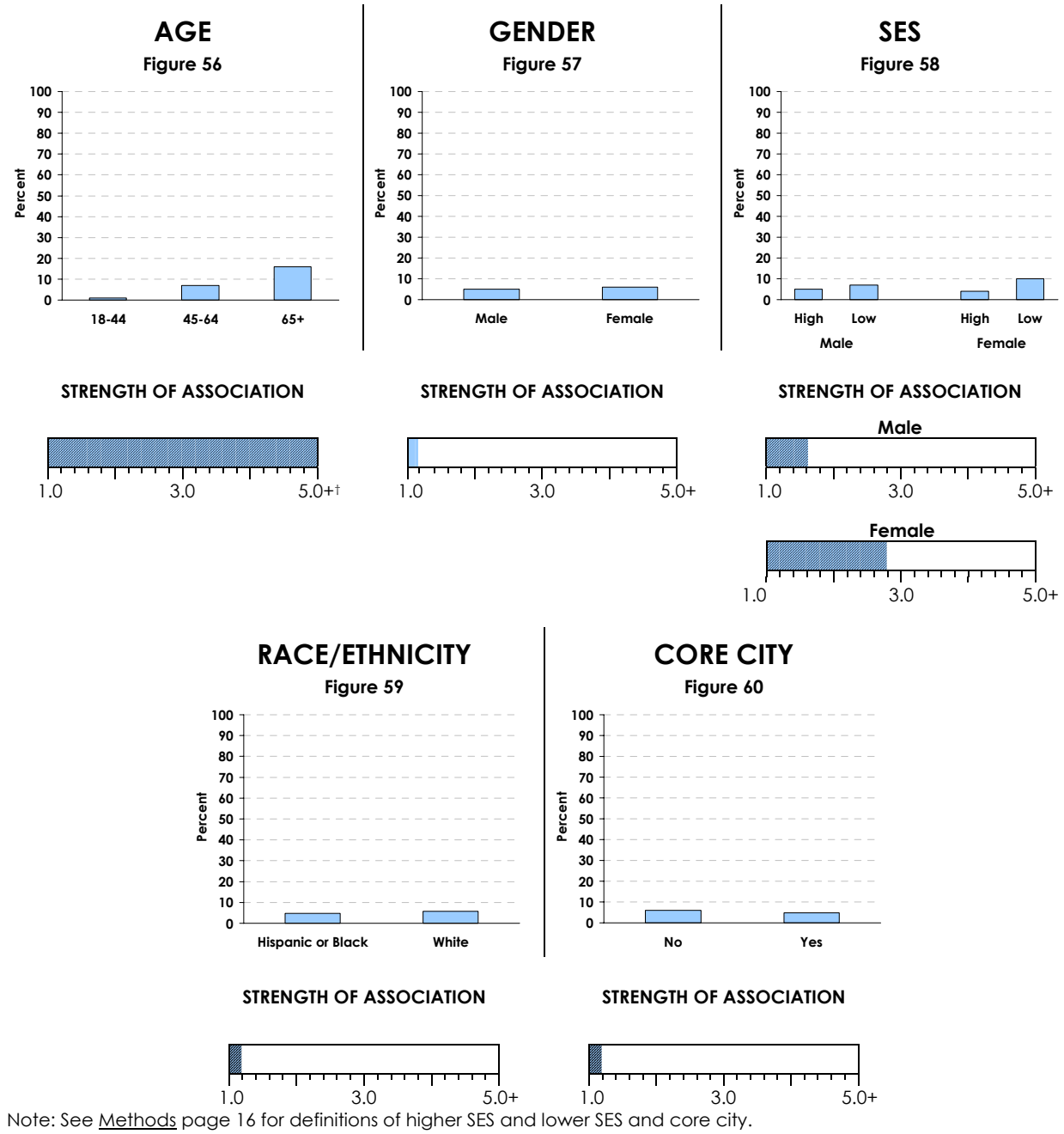
Note: See Methods page 16 for definitions of higher SES and lower SES and core city.
Source: 2002 RI BRFSS

Diabetes: Disparities

Data show age disparities for diabetes. The proportion of Rhode Islander's who have been told by a medical provider that they have diabetes increases with age and is considerably higher among those ages 65 and over than among those ages 18-44. Those over age 65 are more than 5.0 times as likely as those ages 18-44 to have diabetes. Low-income females are nearly 3.0 times as likely to have diabetes as high-income females.

Table 12. Estimated percentage of Rhode Island adults ages 18 and older who have been informed by a medical provider that they have diabetes, by age, gender, SES, race/ethnicity, and residence in core city, 2002

% BRFSS



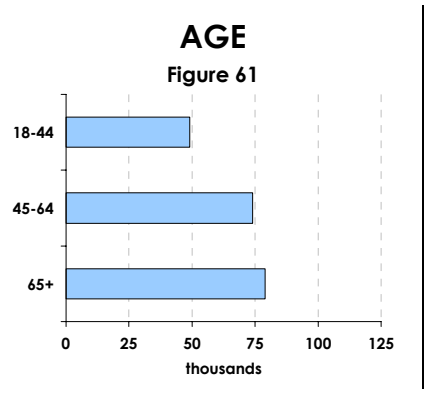
Note: See Methods page 16 for definitions of higher SES and lower SES and core city.
An odds ratio measures the strength of association where ~1.5 is weak, ~3.5 is moderate, and 5.0+ is strong.
Source: 2002 RI BRFSS

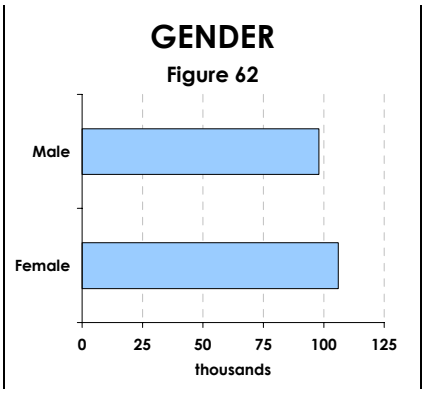
High Blood Pressure: Burden

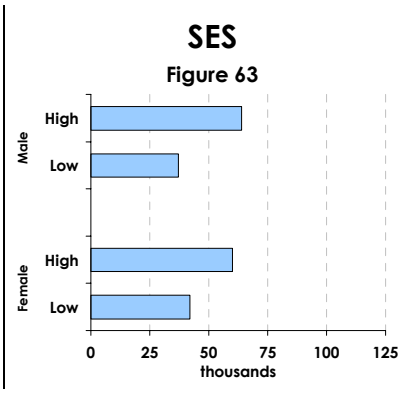
An estimated 208,000 Rhode Island adults have high blood pressure (data not shown). More high SES adults than low SES adults have high blood pressure. The burden of high blood pressure also is higher among Rhode Islanders who are white and who do not live in a core city. High blood pressure is linked to obesity, diabetes, heart attacks, and stroke.

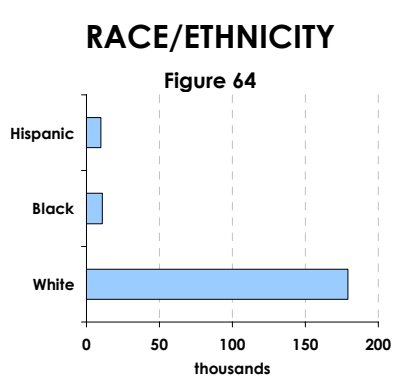
Table 13. Estimated number of Rhode Island adults ages 18 and older who have been informed by a medical provider that they have high blood pressure, by age, gender, SES, race/ethnicity, and residence in core city, 2002

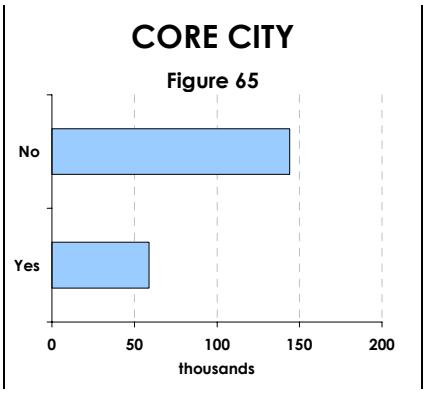
 # (1000s) BRFSS











Note: See Methods page 16 for definitions of higher SES and lower SES and core city.
Source: 2002 RI BRFSS

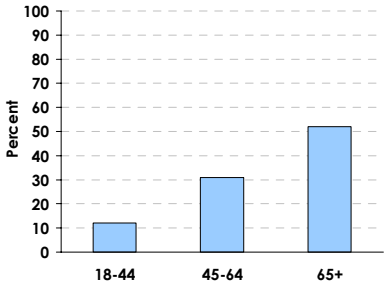
The proportion of Rhode Islanders who have been informed by a health care provider that they have high blood pressure increases considerably with age. As with diabetes, the largest disparity in the prevalence of high blood pressure occurs among age groups, where those over age 65 are more than 5.0 times as likely as those ages 18-44 to have high blood pressure. There is no apparent disparity by SES and a modest disparity by race, with blacks at slightly higher risk of having high blood pressure than whites.

Table 14. Estimated percentage of Rhode Island adults ages 18 and older who have been informed by a medical provider that they have high blood pressure, by age, gender, SES, race/ethnicity, and residence in core city, 2002

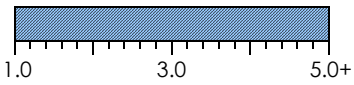
% **BRFSS**

AGE

Figure 66

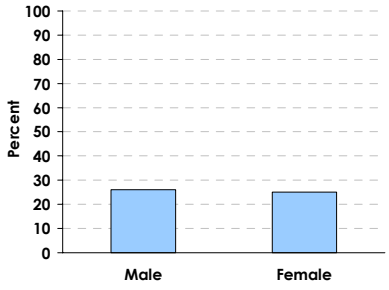


STRENGTH OF ASSOCIATION

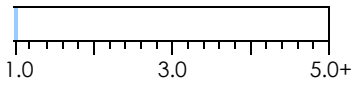


GENDER

Figure 67

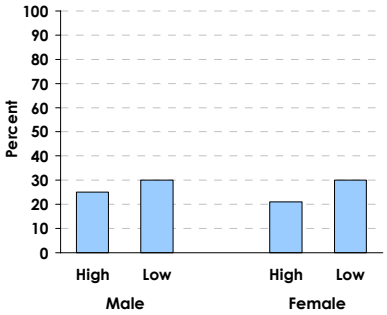


STRENGTH OF ASSOCIATION

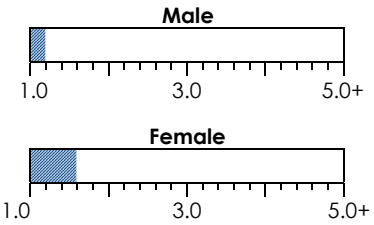


SES

Figure 68

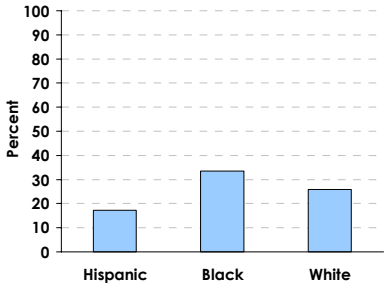


STRENGTH OF ASSOCIATION

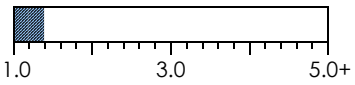


RACE/ETHNICITY

Figure 69

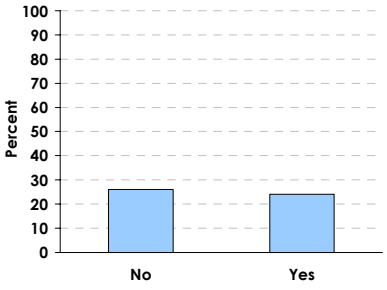


STRENGTH OF ASSOCIATION

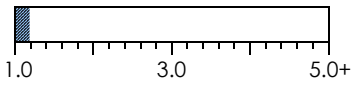


CORE CITY

Figure 70



STRENGTH OF ASSOCIATION



Note: See Methods page 16 for definitions of higher SES and lower SES and core city.
An odds ratio measures the strength of association where ~1.5 is weak, ~3.5 is moderate, and 5.0+ is strong.
Source: 2002 RI BRFSS

High Blood Cholesterol: Burden

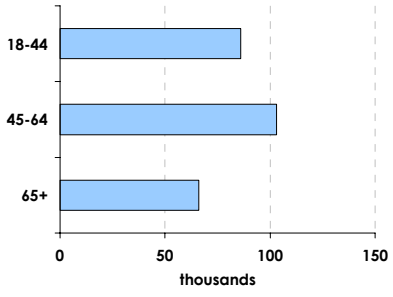
An estimated 264,000 Rhode Island adults have high cholesterol (data not shown). More high SES adults than low SES adults have high cholesterol. The burden of high blood cholesterol also is higher among Rhode Islanders who are white and who do not live in a core city. Having too much cholesterol in the blood is not a disease in itself, but can lead to the hardening and narrowing of the arteries (atherosclerosis) in the major vascular systems. Weight loss can improve cholesterol levels.

Table 15. Estimated number of Rhode Island adults ages 18 and older who have been informed by a medical provider that they have high blood cholesterol, by age, gender, SES, race/ethnicity, and residence in core city, 2002

 # (1000s) BRFSS

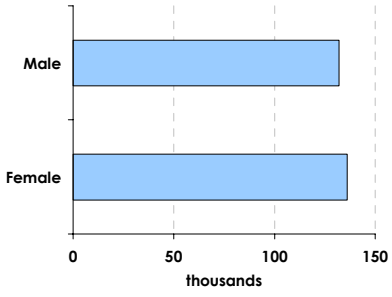
AGE

Figure 71



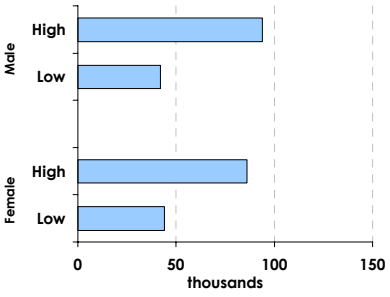
GENDER

Figure 72



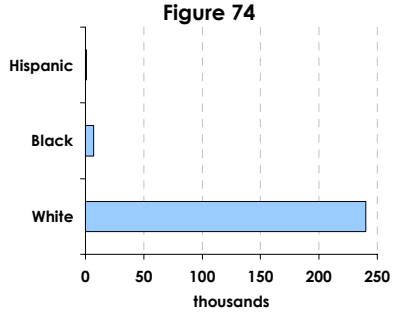
SES

Figure 73



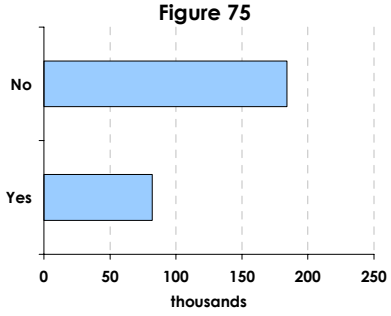
RACE/ETHNICITY

Figure 74



CORE CITY

Figure 75



Note: See Methods page 16 for definitions of higher SES and lower SES and core city.
Source: 2002 RI BRFSS

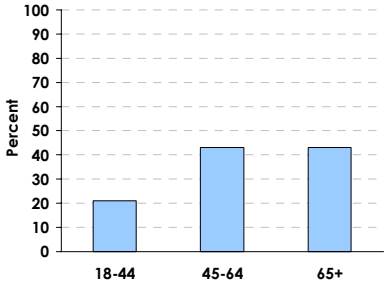
A higher proportion of Rhode Islanders ages 45 and older have been told by a medical provider that they have high cholesterol than those ages 18-44. Those over age 65 are nearly 3.0 times as likely as those ages 18-44 to have high cholesterol. Whites are about 2.0 times more likely to have high cholesterol as racial/ethnic minorities.

Table 16. Estimated percentage of Rhode Island adults ages 18 and older who have been informed by a medical provider that they have high cholesterol, by age, gender, SES, race/ethnicity, and residence in core city, 2002

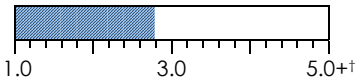
% BRFSS

AGE

Figure 76

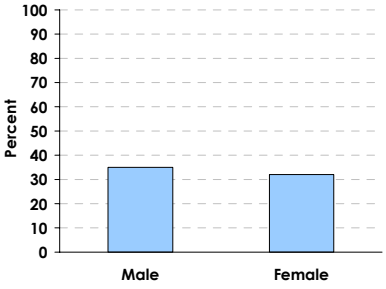


STRENGTH OF ASSOCIATION

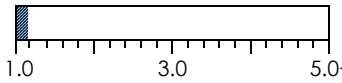


GENDER

Figure 77

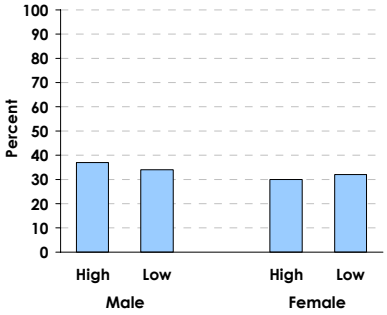


STRENGTH OF ASSOCIATION

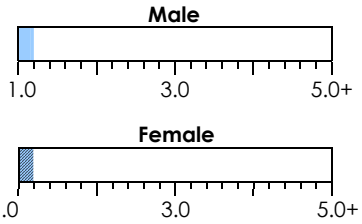


SES

Figure 78

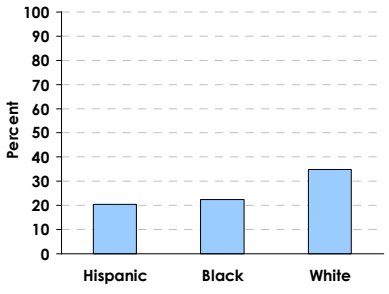


STRENGTH OF ASSOCIATION

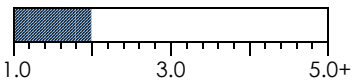


RACE/ETHNICITY

Figure 79

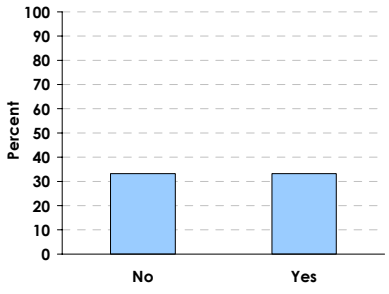


STRENGTH OF ASSOCIATION

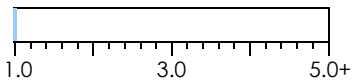


CORE CITY

Figure 80



STRENGTH OF ASSOCIATION



Note: See Methods page 16 for definitions of higher SES and lower SES and core city.
An odds ratio measures the strength of association where ~1.5 is weak, ~3.5 is moderate, and 5.0+ is strong.
Source: 2002 RI BRFSS

FINDINGS – CHILDREN AND ADOLESCENTS

Prevalence of Overweight: Surveillance Data from the Rhode Island Youth Risk Behavioral Surveillance System (RI YRBSS)

The YRBSS was developed to monitor priority health risk behaviors among young people. In RI, the YRBSS is administered to adolescents in grades 9-12. This report follows the CDC convention to identify youth who have a BMI $\geq$ 85th percentile but less than 95th percentile as "at risk of overweight" and to identify youth who have a BMI $\geq$ 95th percentile as "overweight." In the YRBSS, BMI is based on adolescents' self-reported height and weight.

At Risk of Overweight: Burden

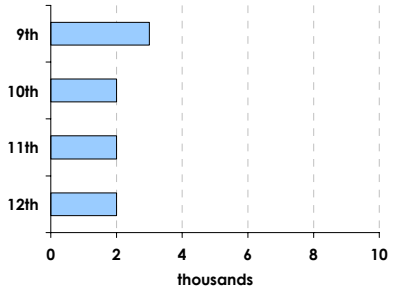
YRBSS data for 2003 show that more white adolescents (6,000) than Hispanic adolescents (1,000) are at risk of overweight. Thus, the burden is greater for white youth than for Hispanic youth.

Table 17. Estimated number of Rhode Island youth who are at risk of overweight, by grade, gender, and race/ethnicity, 2003

 # (1000s) YRBSS

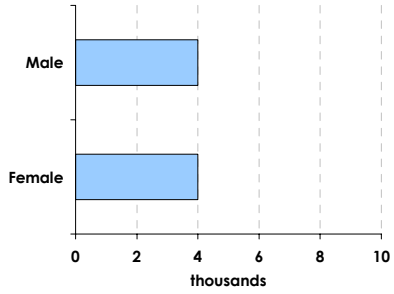
GRADE

Figure 81



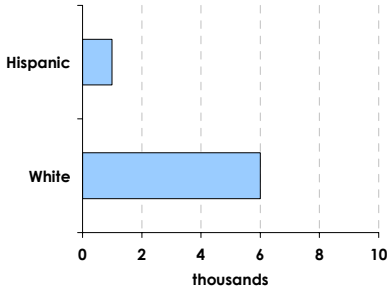
GENDER

Figure 82



RACE/ETHNICITY

Figure 83



Source: 2003 RI YRBSS

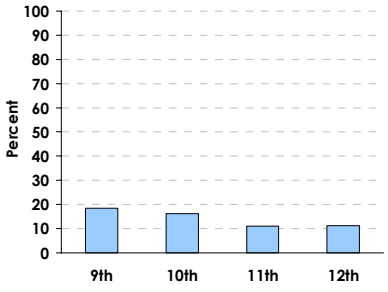
At Risk of Overweight: Disparities

The proportion of RI youth at risk for overweight is similar by gender and race/ethnicity. About 15% of adolescent boys and girls, 17% of Hispanic youth, and 14% of white adolescents are overweight. By contrast, nearly 20% of 9th graders but only 11% of 12th graders are at risk of overweight suggesting disparities in the risk of overweight by age.

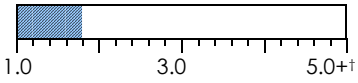
Table 18. Estimated percentage of Rhode Island youth who are at risk of overweight, by grade, gender, and race/ethnicity, 2003 **%** **YRBSS**

GRADE

Figure 84

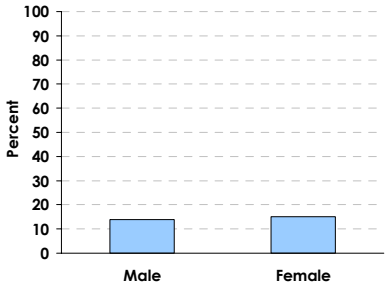


STRENGTH OF ASSOCIATION

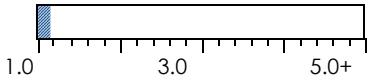


GENDER

Figure 85

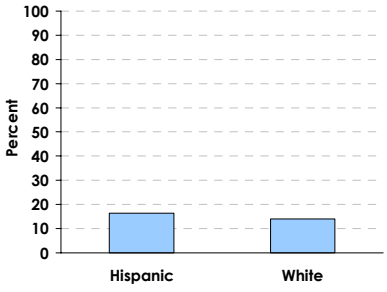


STRENGTH OF ASSOCIATION

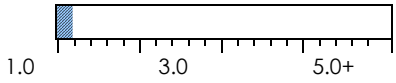


RACE/ETHNICITY

Figure 86



STRENGTH OF ASSOCIATION

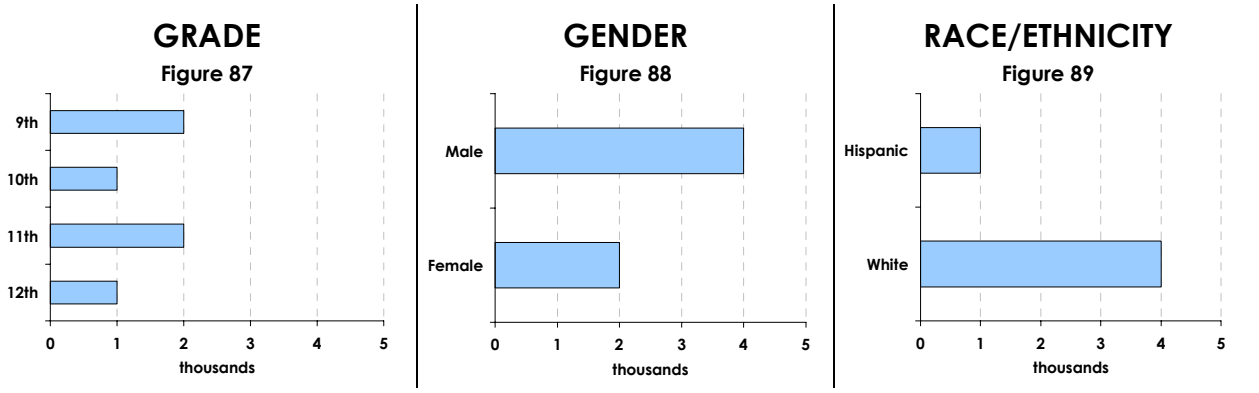


An odds ratio measures the strength of association where ~1.5 is weak, ~3.5 is moderate, and 5.0+ is strong.
Source: 2003 RI YRBSS

Overweight in Youth: Burden

Similar to the findings for at risk of overweight, many more white youth than Hispanic youth are overweight. Twice as many boys as girls are overweight (4,000 vs. 2,000).

Table 19. Estimated number of Rhode Island youth who are overweight, by grade, gender, and race/ethnicity, 2003 **# (1000s) YRBSS**

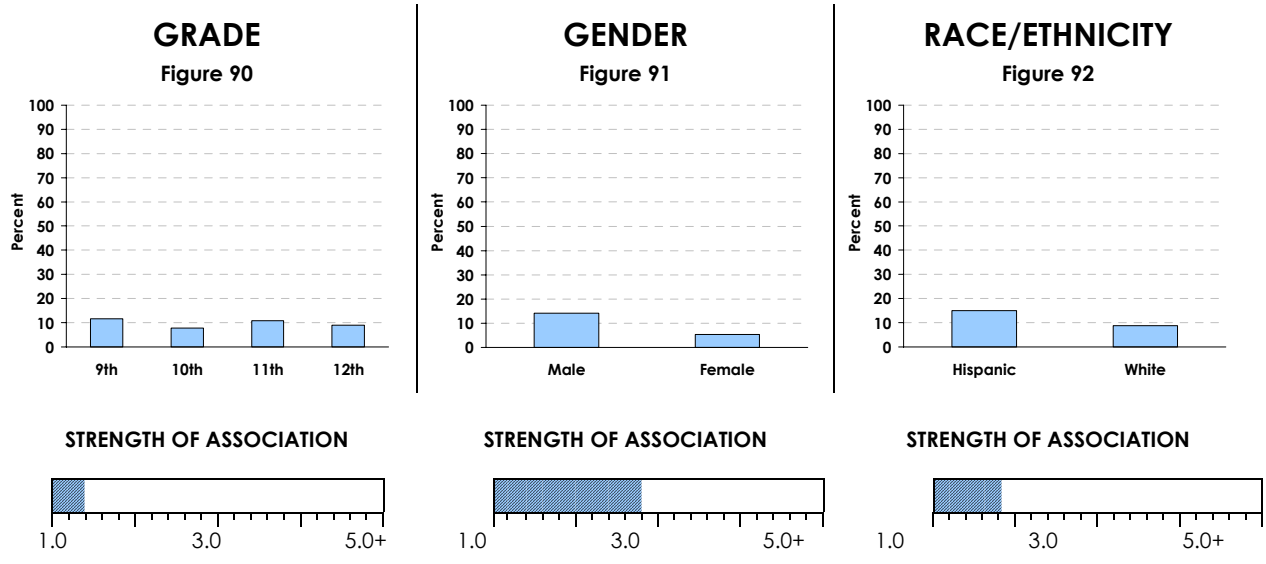


Source: 2003 RI YRBSS

Overweight in Youth: Disparities

Among RI youth, there are important disparities in overweight by sex. Nearly three times as many boys as girls have a BMI in the 95th percentile or higher (14% vs. 5%).

Table 20. Estimated percentage of Rhode Island youth who are overweight, by grade, gender, and race/ethnicity, 2003 **% YRBSS**



An odds ratio measures the strength of association where ~1.5 is weak, ~3.5 is moderate, and 5.0+ is strong.
Source: 2003 RI YRBSS

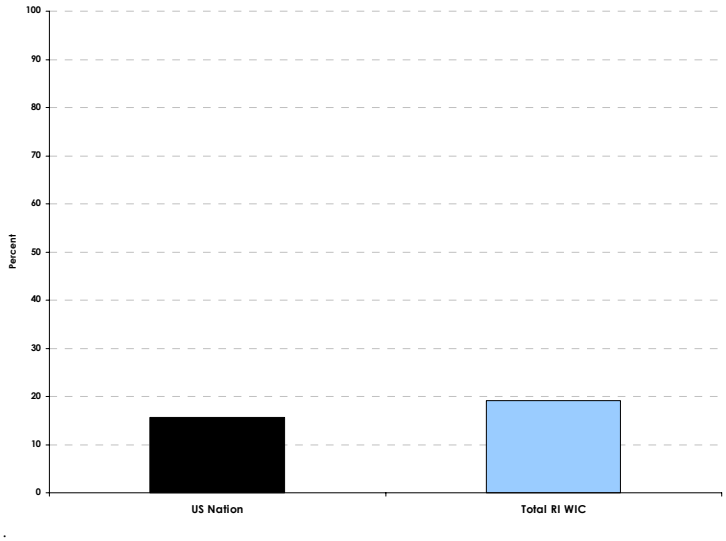
At Risk of Overweight: WIC Children Ages 2 to 5 years

About one-fifth (19%) of children ages 2 to 5 years in the RI WIC Program are at risk of overweight (BMI 85th to < 95th percentile), which is slightly higher than the proportion of children ages 2 to 5 years who are at risk of overweight based on estimates from national data (16%).

Table 21. Estimated percentage of Rhode Island children enrolled in WIC who are at risk of overweight, 2004

% WIC

Figure 93



Sources: US National data: 2003 Pediatric and Pregnancy Nutrition Surveillance System (PedNSS), 2003, children ages 2- 5 years.
RI data: 2003 RI WIC Program Data

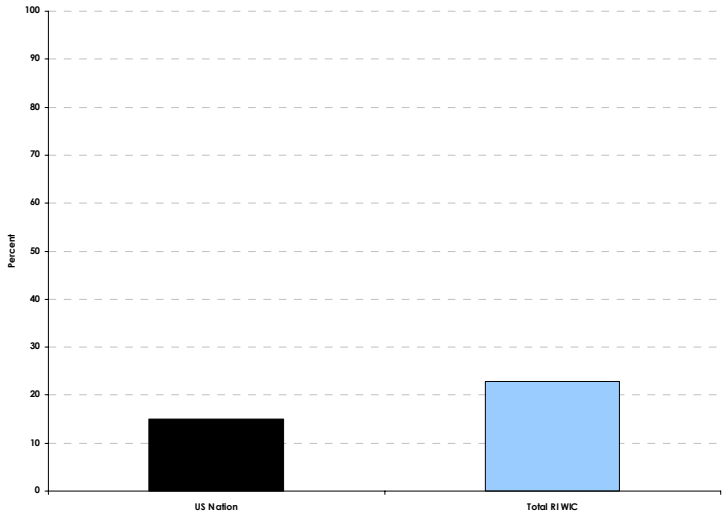
Overweight: WIC Children Ages 2 to 5 years

The proportion of WIC children 2 - 5 years of age who are overweight (BMI $\geq$ 95th percentile) is higher (23%) than the percent of children who are overweight based on national data (15%). Of particular concern is that the percentage of overweight children in the RI WIC program is nearly five times higher than the Healthy People 2010 target of 5%.

Table 22. Estimated percentage of Rhode Island children enrolled in WIC who are overweight, 2004

% WIC

Figure 94



Sources: US National data: 2003 Pediatric and Pregnancy Nutrition Surveillance System (PedNSS), 2003, children ages 2- 5 years.
RI data: 2003 RI WIC Program Data.

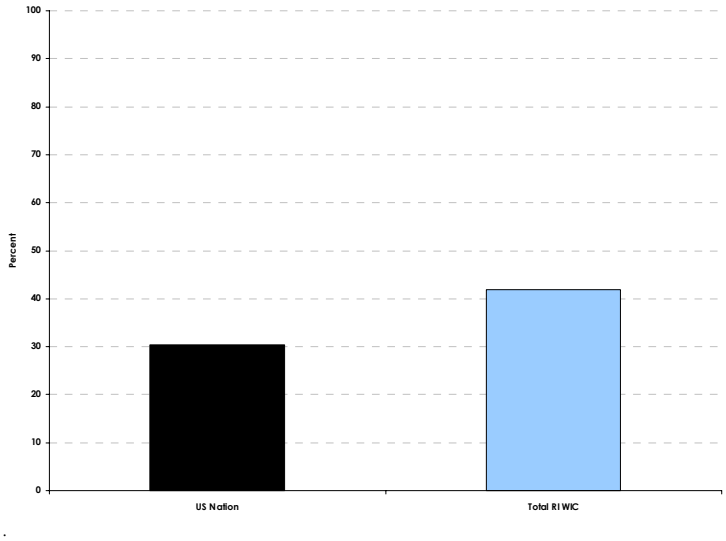
At Risk of Overweight or Overweight: WIC Children Ages 2 to 5 years

RI WIC program data show that 42% of children ages 2 to 5 years are at risk of overweight or overweight. Although not shown in Table 23, some RI WIC programs reported that 60% of enrolled children were at risk of overweight or overweight.

Table 23. Estimated percentage of Rhode Island children enrolled in WIC who are overweight or obese, 2004

% WIC

Figure 95



Sources: US National data: 2003 Pediatric and Pregnancy Nutrition Surveillance System (PedNSS), 2003, children ages 2- 5 years.
RI data: 2003 RI WIC Program Data.

Poor Nutrition: Burden

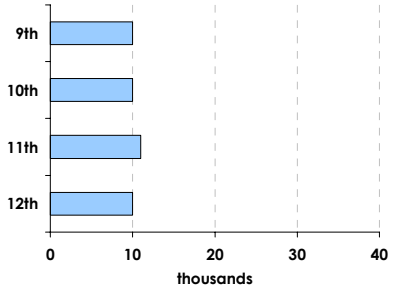
Among RI adolescents, many more white youth (32,000) than Hispanic youth (5,000) have poor dietary habits.

Table 24. Estimated number of Rhode Island youth who eat fewer than five servings of fruits and vegetables daily, by grade, gender, and race/ethnicity, 2003

 # (1000s) YRBSS

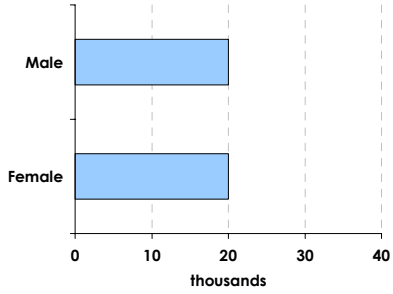
GRADE

Figure 96



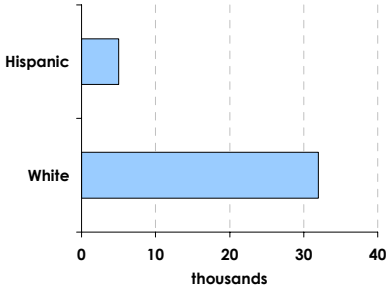
GENDER

Figure 97



RACE/ETHNICITY

Figure 98



Source: 2003 RI YRBSS

Poor Nutrition: Disparities

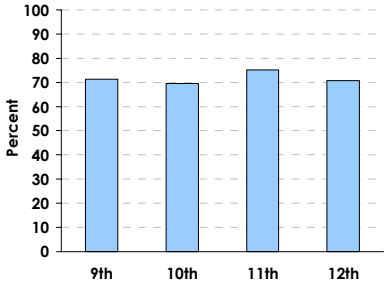
No disparities were found in the percentage of youth who have poor nutrition as measured by students' self-report of frequency of fruit and vegetable consumption. About 70% of youth do not eat 5 fruits and vegetables day, and the percentage is similar by grade, gender, and race/ethnicity.

Table 25. Estimated percentage of Rhode Island youth who eat fewer than five servings of fruits and vegetables daily, by grade, gender, and race/ethnicity, 2003

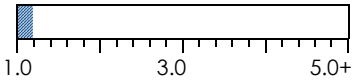
% **YRBSS**

GRADE

Figure 99

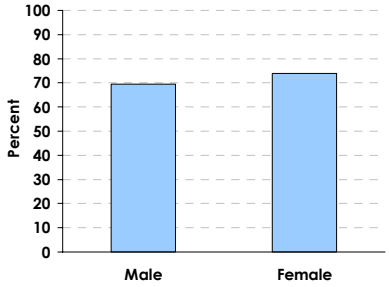


STRENGTH OF ASSOCIATION

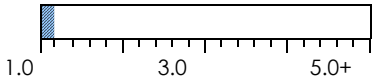


GENDER

Figure 100

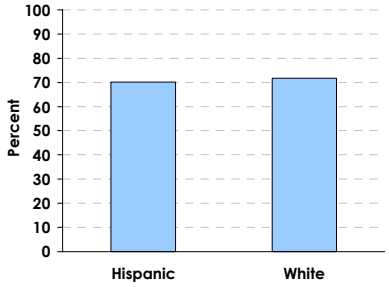


STRENGTH OF ASSOCIATION

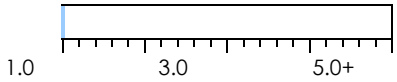


RACE/ETHNICITY

Figure 101



STRENGTH OF ASSOCIATION



An odds ratio measures the strength of association where ~1.5 is weak, ~3.5 is moderate, and 5.0+ is strong.
Source: 2003 RI YRBSS

Physical Inactivity: Burden

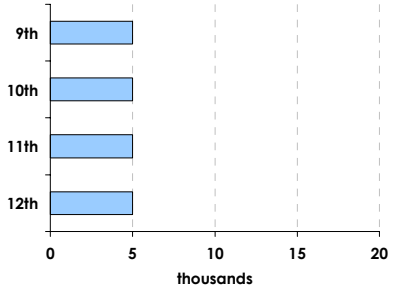
Among RI adolescents, more white youth (15,000) than Hispanic youth (2,500) are not physically active.

Table 26. Estimated number of Rhode Island youth who did not meet national youth guidelines for physical activity in past week, by grade, gender, and race/ethnicity, 2003

 # (1000s) YRBSS

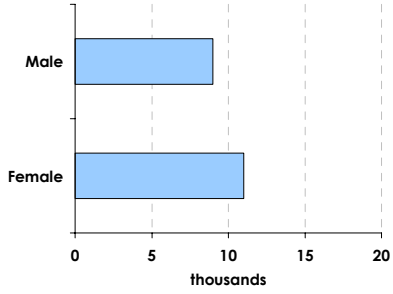
GRADE

Figure 102



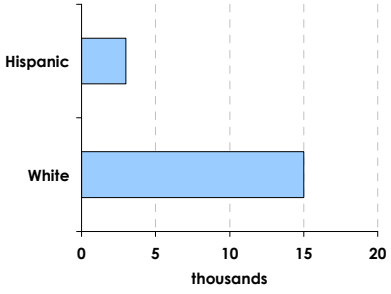
GENDER

Figure 103



RACE/ETHNICITY

Figure 104



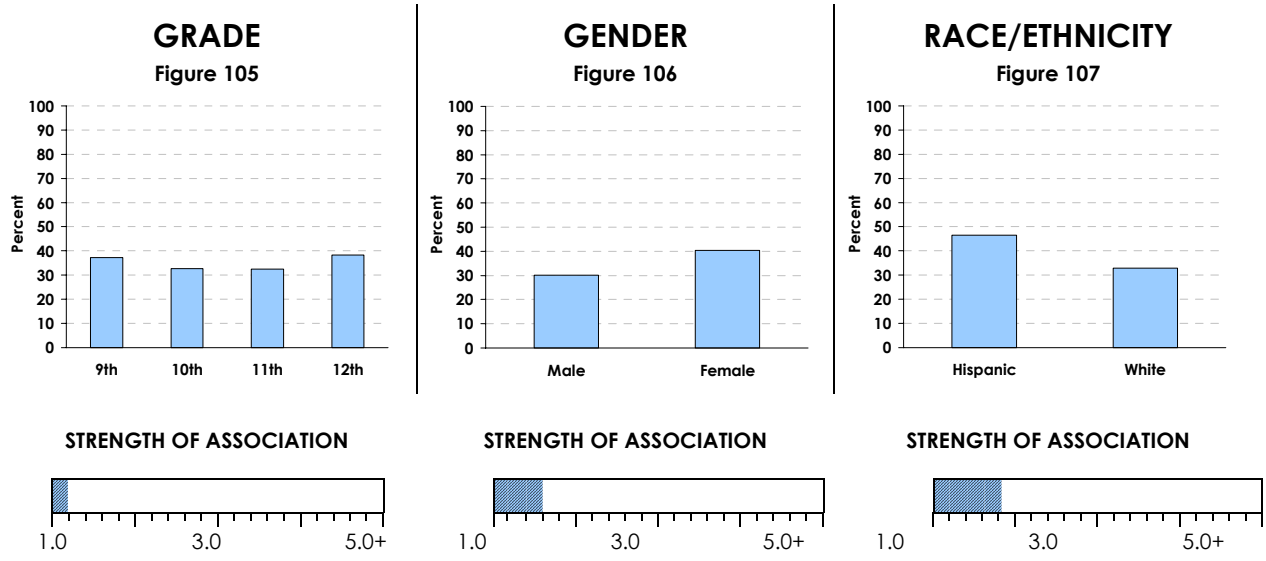
Source: 2003 RI YRBSS

Physical Inactivity: Disparities

Not being physically active is more common among girls than boys, and among Hispanic youth than white youth, but the differences across groups are modest. For example, in the 2003 YRBS, 30% of boys and 40% of girls said that they did not meet national youth guidelines for physical activity, suggesting that boys as well as girls need encouragement to be more active.

Table 27. Estimated percentage of Rhode Island youth who did not meet national youth guidelines for physical activity in past week, by grade, gender, and race/ethnicity, 2003

% **YRBSS**



An odds ratio measures the strength of association where ~1.5 is weak, ~3.5 is moderate, and 5.0+ is strong.
Source: 2003 RI YRBSS

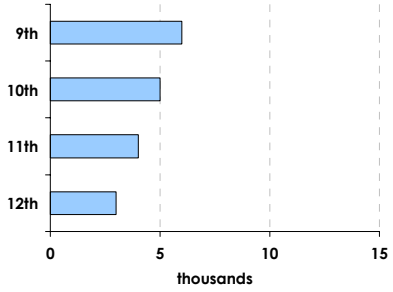
TV Viewing: Burden

Among RI adolescents, more boys (11,000) than girls (8,000) watch three or more hours of TV a day. The number of youth who watch three or more hours of TV a week is four times higher for whites than Hispanics (12,000 vs. 3,000).

Table 28. Estimated number of Rhode Island youth who watch 3 or more hours of TV per day by grade, gender, race/ethnicity, 2003 **# (1000s) YRBSS**

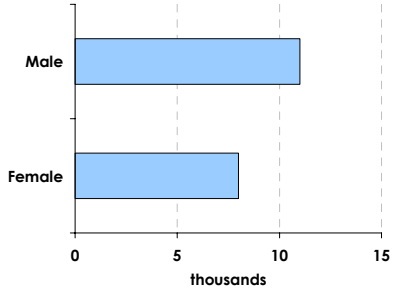
GRADE

Figure 108



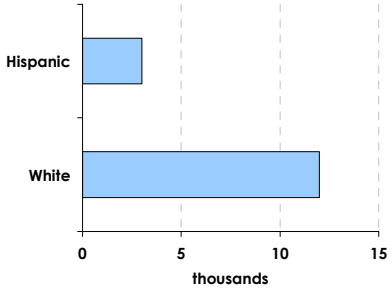
GENDER

Figure 109



RACE/ETHNICITY

Figure 110



Source: 2003 RI YRBSS

TV Viewing: Disparities

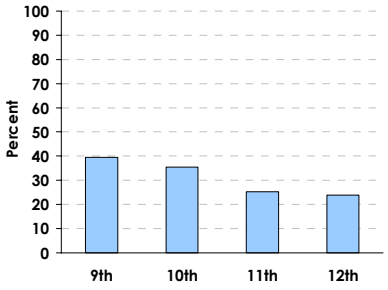
Watching three or more hours of TV a day is more common among Hispanic youth than white youth, and more common among males than females. Ninth and tenth grade students watch more television than 11th and 12th grade students.

Table 29. Estimated percentage of Rhode Island youth who watch 3 or more hours of TV per day, by grade, gender, race/ethnicity, 2003

% YRBSS

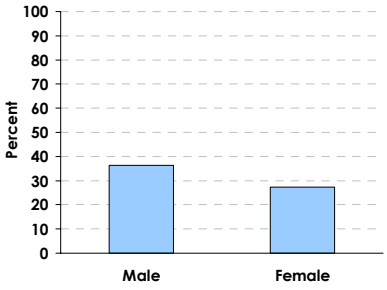
GRADE

Figure 111



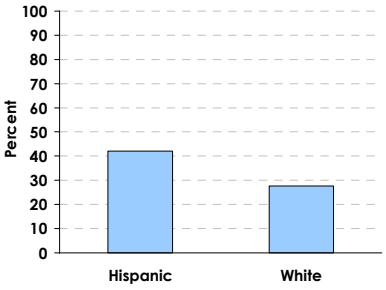
GENDER

Figure 112

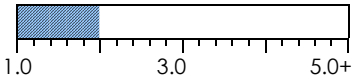


RACE/ETHNICITY

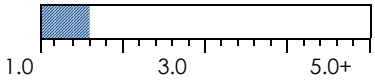
Figure 113



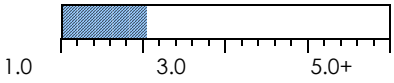
STRENGTH OF ASSOCIATION



STRENGTH OF ASSOCIATION



STRENGTH OF ASSOCIATION



An odds ratio measures the strength of association where ~1.5 is weak, ~3.5 is moderate, and 5.0+ is strong.
Source: 2003 RI YRBSS

Breastfeeding: Burden

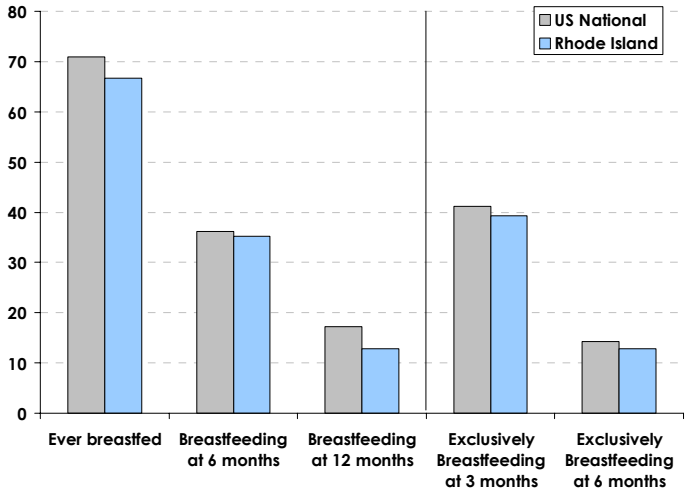
The most important thing parents can do to help their children maintain a healthy weight is to provide them with a healthful, balanced diet and encourage them to be physically active. Recent research also suggests that breastfeeding for as long as possible helps prevent childhood overweight and obesity (Grummer-Strawn, 2004).

RI data from CDC's National Immunization Survey (NIS) show that the percentages of mothers who have ever breastfed their infants, breastfed for 6 months and breastfed for 12 months are all lower than those for the nation as a whole.

Although not shown in the figure below, the percentage of mothers who report ever breastfeeding their infants is lower in RI (66.7%) than in all other New England states.

Table 30. Estimated percentage of Rhode Island mothers who breastfed their infants, 2003 **% NIS**

Figure 114



Source: 2003 National Immunization Survey

Breastfeeding: Disparities

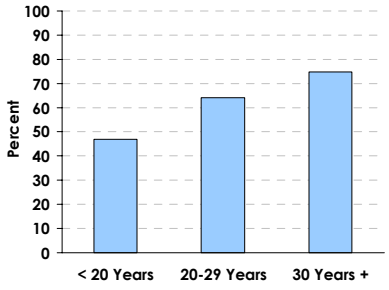
Among RI mothers who gave birth in 2003, there are disparities in the prevalence of breastfeeding by age, household income, race/ethnicity, and marital status. Breastfeeding rates increase with age, income, education, and being married, and are higher among Hispanics than non-Hispanic women.

Table 31. Estimated percentage of Rhode Island mothers who ever breastfed their infants, by age, household income, education, ethnicity, race, and marital status, 2003

% PRAMS

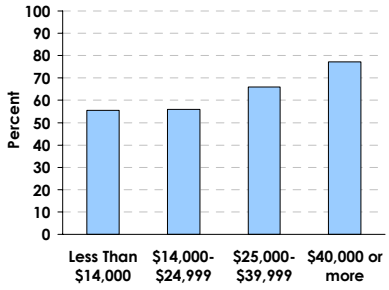
AGE

Figure 115



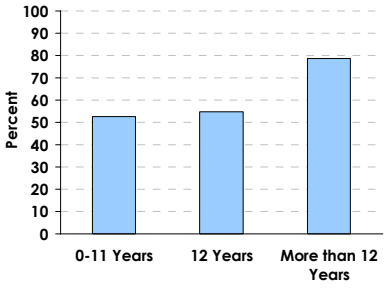
INCOME

Figure 116



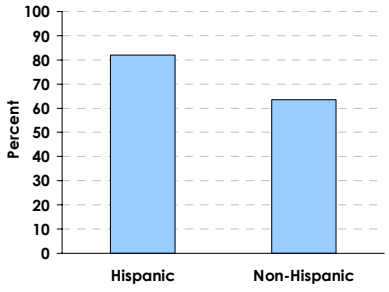
EDUCATION

Figure 117



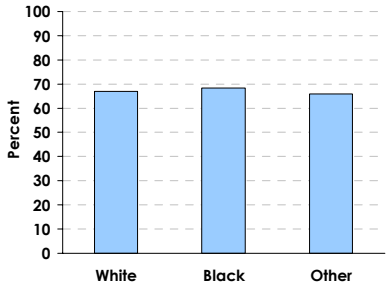
ETHNICITY

Figure 118



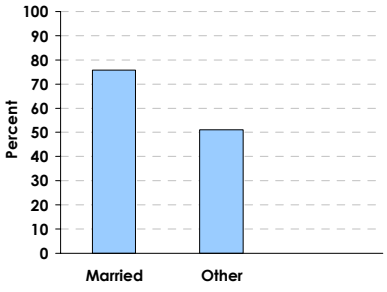
RACE

Figure 119



MARITAL STATUS

Figure 120



Source: 2003 RI PRAMS

FINDINGS: - OBESITY-RELATED DISEASES

Hospitalizations: Rhode Island Hospital Discharge Data (RI HDD)

Hospital Discharge Data

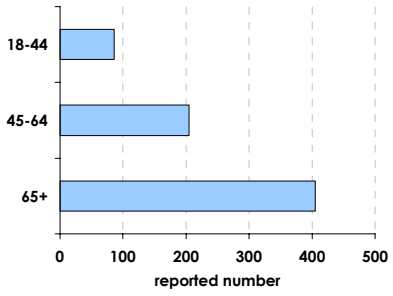
Information on whether a person was overweight or obese at the time of hospitalization is not available from Hospital Discharge Data. Many factors, other than obesity, contribute to chronic conditions that may be exacerbated by obesity.

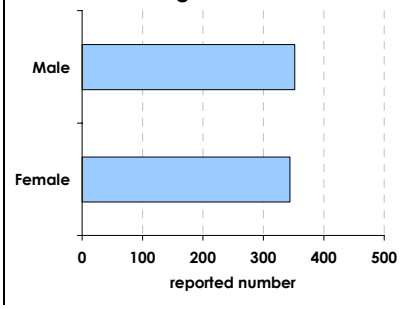
Type 2 Diabetes: Burden

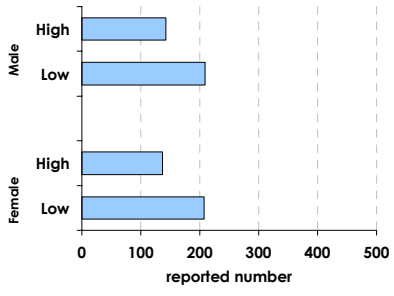
In 2002, less than 1% of adults admitted to a RI hospital had a primary diagnosis of diabetes (data not shown). A majority of persons admitted to the hospital with a primary diagnosis of diabetes are over age 65.

Table 32. Reported number of Rhode Island adults ages 18 and older who were hospitalized for type 2 diabetes, by age, gender, and SES, 2002

 # HDD







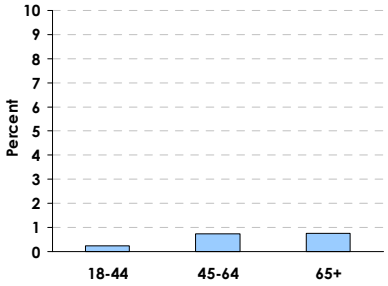
Note: See Methods page 16 for definitions of higher SES and lower SES.
Source: 2002 RI Hospital Discharge Data

In RI, adults ages 65 and older are three times as likely as those ages 18-44 to be admitted to a hospital with a primary diagnosis of diabetes.

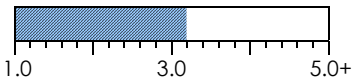
Table 33. Percentage of Rhode Island adults ages 18 and older who were hospitalized for type 2 diabetes, by age, gender, and SES, 2002 **% HDD**

AGE

Figure 124

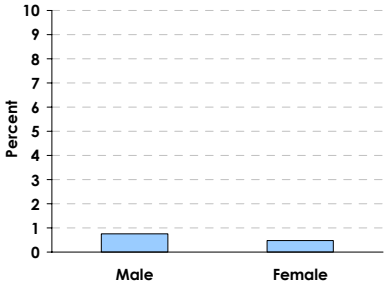


STRENGTH OF ASSOCIATION

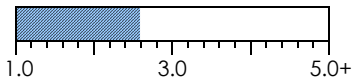


GENDER

Figure 125

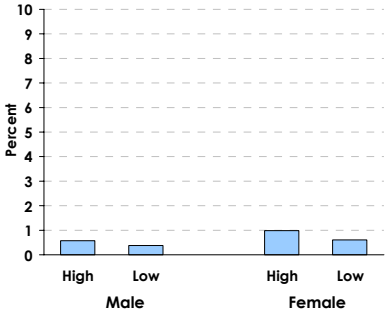


STRENGTH OF ASSOCIATION

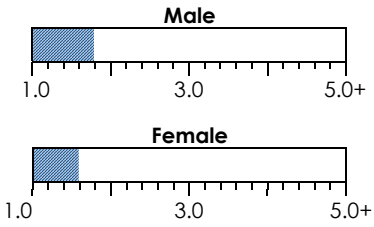


SES

Figure 126



STRENGTH OF ASSOCIATION



Note: See Methods page 16 for definitions of higher SES and lower SES.
An odds ratio measures the strength of association where ~1.5 is weak, ~3.5 is moderate, and 5.0+ is strong.
Source: 2002 RI Hospital Discharge Data

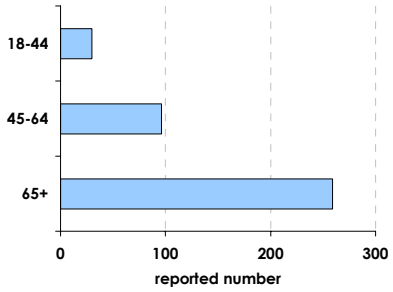
Hypertensive Disease: Burden

As with diabetes, in 2002 less than 1% of adults admitted to a RI hospital had a primary diagnosis of hypertensive disease (data not shown). A majority of Rhode Islanders hospitalized for hypertensive disease were adults ages 65+ and women.

Table 34. Reported number of Rhode Island adults ages 18 and older who were hospitalized for hypertensive disease, by age, gender, and SES, 2002 **# HDD**

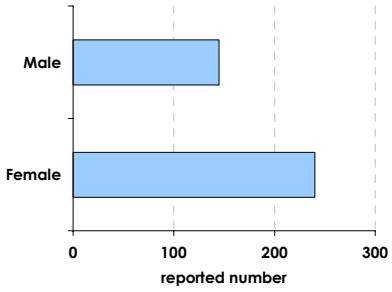
AGE

Figure 127



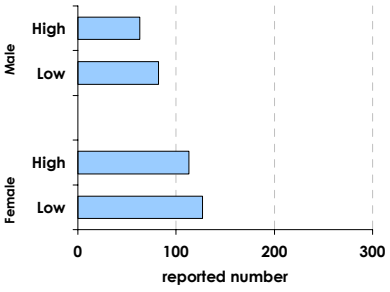
GENDER

Figure 128



SES

Figure 129



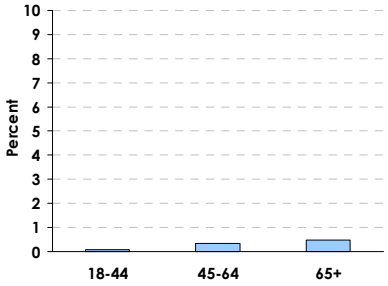
Note: See Methods page 16 for definitions of higher SES and lower SES.
Source: 2002 RI Hospital Discharge Data

In RI, adults ages 65 and older are more than five times as likely as those ages 18-44 to be admitted to a hospital with a primary diagnosis of hypertensive disease.

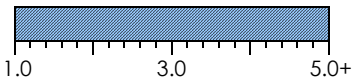
Table 35. Percentage of Rhode Island adults ages 18 and older who were hospitalized for hypertensive disease, by age, gender, and SES, 2002 **% HDD**

AGE

Figure 130

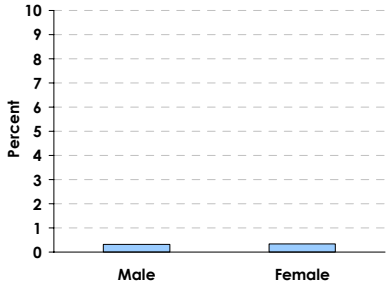


STRENGTH OF ASSOCIATION

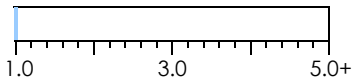


GENDER

Figure 131

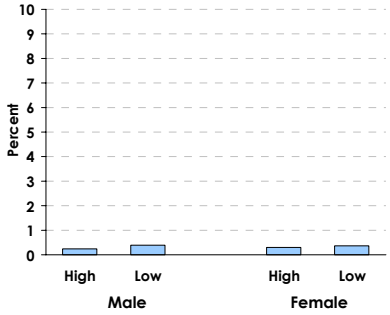


STRENGTH OF ASSOCIATION

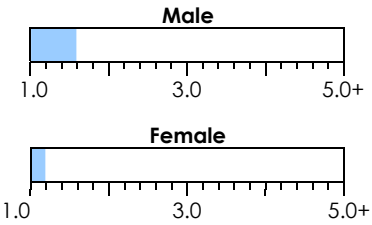


SES

Figure 132



STRENGTH OF ASSOCIATION



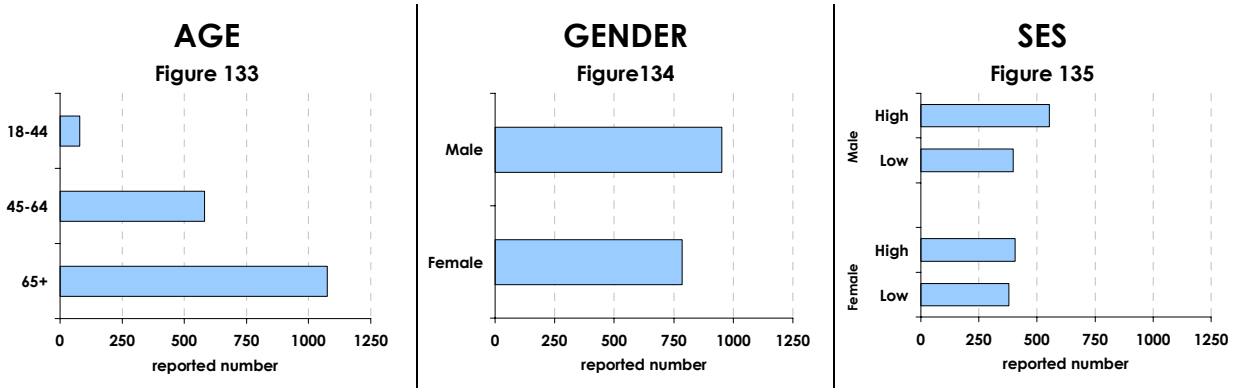
Note: See Methods page 16 for definitions of higher SES and lower SES.
An odds ratio measures the strength of association where ~1.5 is weak, ~3.5 is moderate, and 5.0+ is strong.
Source: 2002 RI Hospital Discharge Data

Heart Disease: Burden

In 2002, 1.5% of RI adults were hospitalized with a primary diagnosis of heart disease (data not shown). Most adults admitted to the hospital for heart disease are over age 65.

Table 36. Reported number of Rhode Island adults ages 18 and older who were hospitalized for heart disease, by age, gender, and SES, 2002

 # HDD



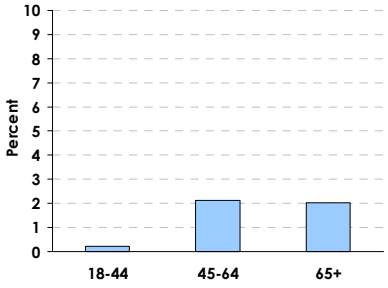
Note: See Methods page 16 for definitions of higher SES and lower SES.
Source: 2002 RI Hospital Discharge Data

Adults ages 65 and older are nine times as likely as those ages 18-44 to be admitted to a hospital with a primary diagnosis of heart disease.

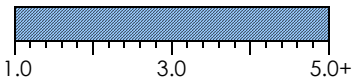
Table 37. Percentage of Rhode Island adults ages 18 and older who were hospitalized for heart disease, by age, gender, and SES, 2002 **% HDD**

AGE

Figure 136

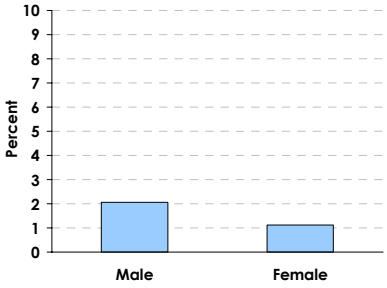


STRENGTH OF ASSOCIATION

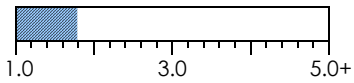


GENDER

Figure 137

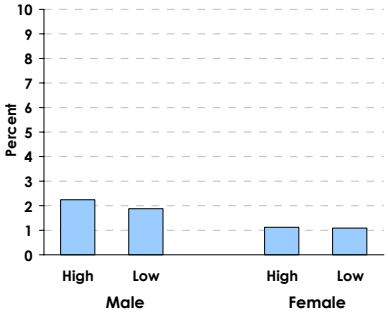


STRENGTH OF ASSOCIATION

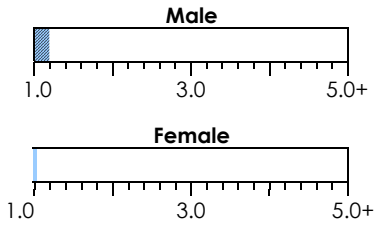


SES

Figure 138



STRENGTH OF ASSOCIATION



Note: See Methods page 16 for definitions of higher SES and lower SES.
An odds ratio measures the strength of association where ~1.5 is weak, ~3.5 is moderate, and 5.0+ is strong.
Source: 2002 RI Hospital Discharge Data

Stroke: Burden

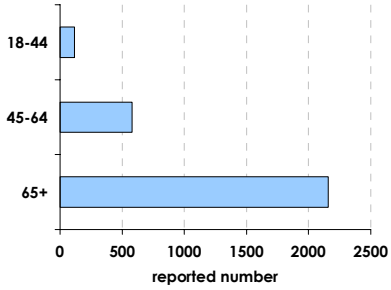
In 2002, about 2% of the persons admitted to a RI hospital had a primary diagnosis of stroke (2.4%; data not shown). A majority of adults admitted to a hospital with a primary diagnosis of stroke are age 65+ (2,854). More women (1,459) then men (1,359) had a primary diagnosis of stroke.

Table 38. Reported number of Rhode Island adults ages 18 and older who were hospitalized for stroke, by age, gender, and SES, 2002

 # HDD

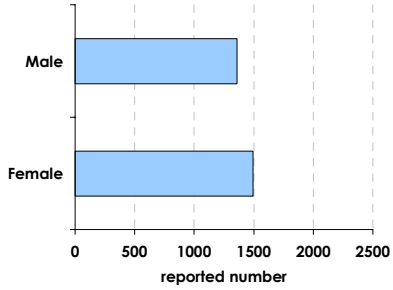
AGE

Figure 139



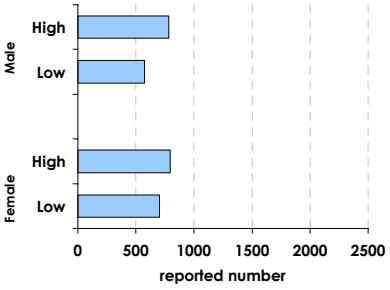
GENDER

Figure 140



SES

Figure 141



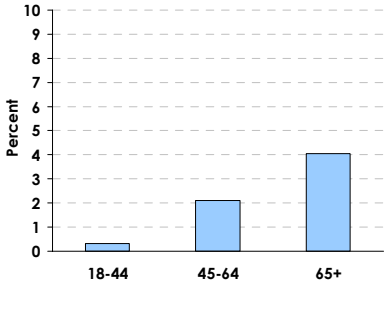
Note: See Methods page 16 for definitions of higher SES and lower SES.
Source: 2002 RI Hospital Discharge Data

Adults ages 65 and older are more than 12 times as likely as those ages 18-44 to be admitted to a hospital with a primary diagnosis of stroke. Although not shown in Figure 142, adults ages 45-64 are seven times as likely as those ages 18-44 to have a primary diagnosis of stroke at the time of a hospital admission.

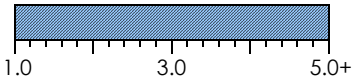
Table 39. Percentage of Rhode Island adults ages 18 and older who were hospitalized for stroke, by age, gender, and SES, 2002 **% HDD**

AGE

Figure 142

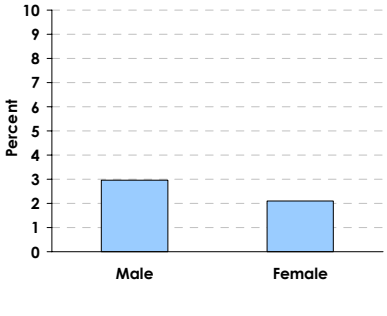


STRENGTH OF ASSOCIATION

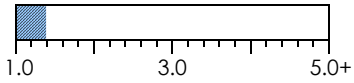


GENDER

Figure 143

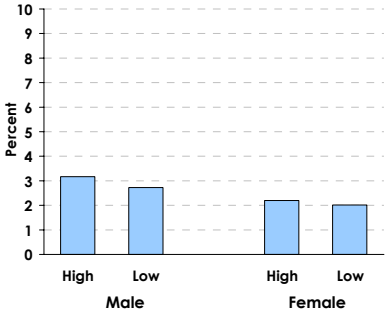


STRENGTH OF ASSOCIATION

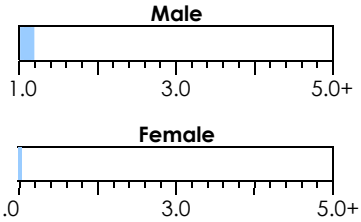


SES

Figure 144



STRENGTH OF ASSOCIATION

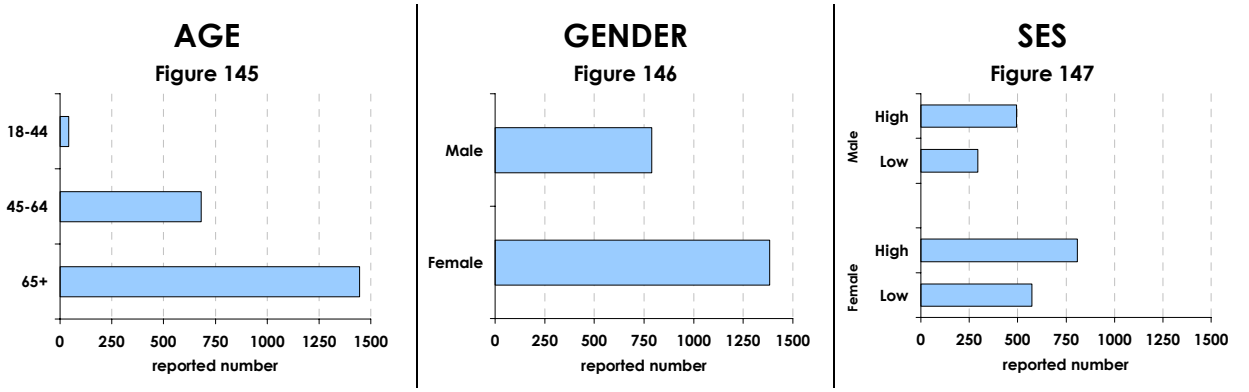


Note: See Methods page 16 for definitions of higher SES and lower SES.
An odds ratio measures the strength of association where ~1.5 is weak, ~3.5 is moderate, and 5.0+ is strong.
Source: 2002 RI Hospital Discharge Data

Osteoarthritis: Burden

Hospital discharge data for osteoarthritis is similar to that found for stroke with osteoarthritis comprising nearly 2% of all primary diagnoses at the time of a hospital admission (1.9%; data not shown). Most adults with an inpatient primary diagnosis of osteoarthritis are over age 65. More women than men are admitted to a hospital with a primary diagnosis of osteoarthritis.

Table 40. Reported number of Rhode Island adults ages 18 and older who were hospitalized for osteoarthritis, by age, gender, and SES, 2002 **# HDD**



Note: See Methods page 16 for definitions of higher SES and lower SES.
Source: 2002 RI Hospital Discharge Data

Osteoarthritis: Disparities

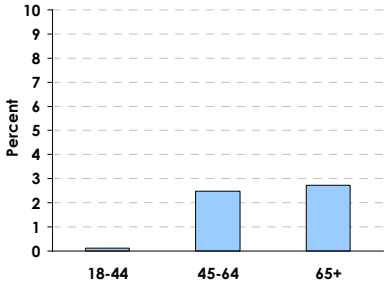
The likelihood of being admitted to a hospital with a primary diagnosis of osteoarthritis is 24 times as high for adults ages 65 and older as for adults ages 18-44 years. The risk of being admitted to a hospital with a primary diagnosis of osteoarthritis is only slightly lower for adults ages 45-64 years (odds ratio not shown).

Table 41. Percentage of Rhode Island adults ages 18 and older who were hospitalized for osteoarthritis, by age, gender, and SES, 2002

% **HDD**

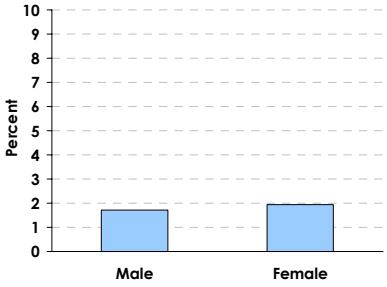
AGE

Figure 148



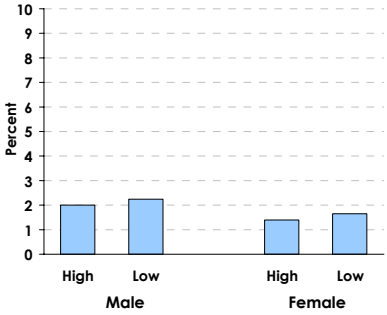
GENDER

Figure 149

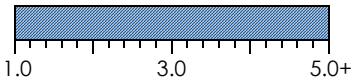


SES

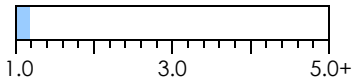
Figure 150



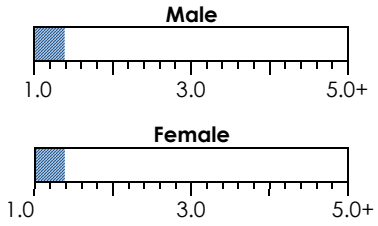
STRENGTH OF ASSOCIATION



STRENGTH OF ASSOCIATION



STRENGTH OF ASSOCIATION



Note: See Methods page 16 for definitions of higher SES and lower SES.
An odds ratio measures the strength of association where ~1.5 is weak, ~3.5 is moderate, and 5.0+ is strong.
Source: 2002 RI Hospital Discharge Data

Gallbladder Disease: Burden

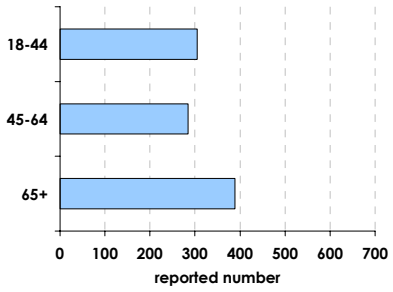
In 2002, gallbladder disease represented less than 1% of all hospital-based primary diagnoses (data not shown). The number of adults admitted to a hospital with a primary diagnosis of gallbladder disease varies little by age group. Twice as many women (647) as men (332) are hospitalized for gallbladder disease.

Table 42. Reported number of Rhode Island adults ages 18 and older who were hospitalized for gallbladder disease, by age, gender, and SES, 2002

 # HDD

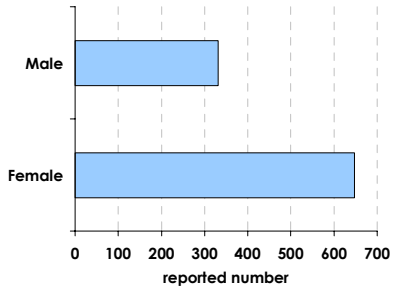
AGE

Figure 151



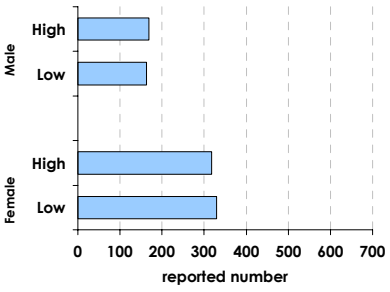
GENDER

Figure 152



SES

Figure 153



Note: See Methods page 16 for definitions of higher SES and lower SES.
Source: 2002 RI Hospital Discharge Data

Gallbladder Disease: Disparities

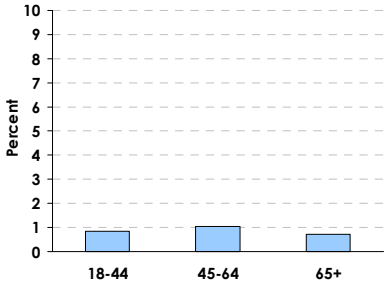
The proportion of adults admitted to a RI hospital with a primary diagnosis of gallbladder disease does not vary by age, gender, or SES.

Table 43. Percentage of Rhode Island adults ages 18 and older who were hospitalized for gallbladder disease, by age, gender, and SES, 2002

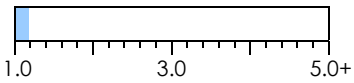
% **HDD**

AGE

Figure 154

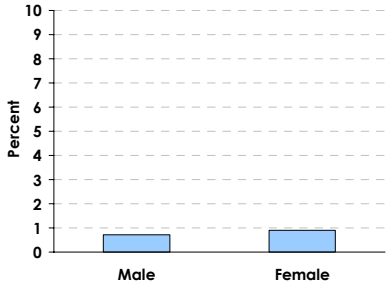


STRENGTH OF ASSOCIATION

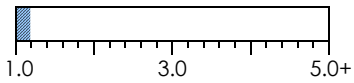


GENDER

Figure 155

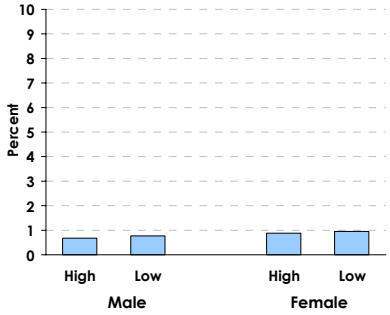


STRENGTH OF ASSOCIATION

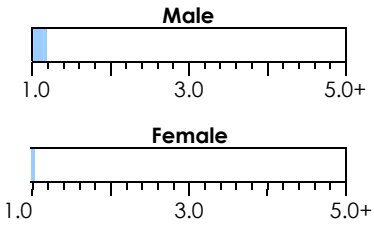


SES

Figure 156



STRENGTH OF ASSOCIATION



Note: See Methods page 16 for definitions of higher SES and lower SES.
An odds ratio measures the strength of association where ~1.5 is weak, ~3.5 is moderate, and 5.0+ is strong.
Source: 2002 RI Hospital Discharge Data

Vital Record Data

Information on whether a person was overweight or obese at the time of death is not available from Vital Record data. Many factors, other than obesity, contribute to chronic conditions that may be exacerbated by obesity.

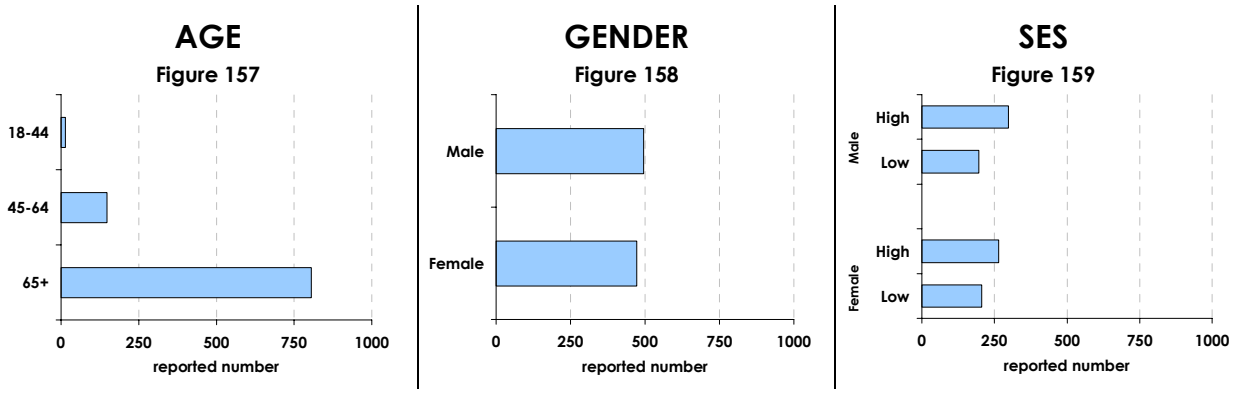
Vital Record data do not distinguish between pre- and postmenopausal breast cancer. Obesity is a risk factor only for postmenopausal breast cancer.

Heart Disease: Burden

In 2002, nearly 10% of RI adults died from heart disease (data not shown). A majority of the persons who died from heart disease are over age 65.

Table 44. Reported number of Rhode Island adults ages 18 and older who died from heart disease*, by age, gender, and SES, 2002

 # VITAL



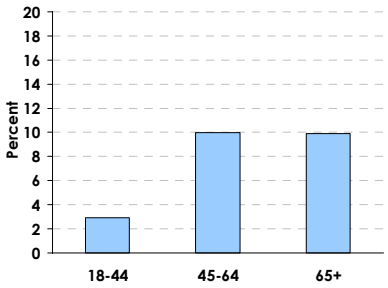
Note: See Methods page 16 for definitions of higher SES and lower SES.
* Ischemic heart disease (ICD10 codes: I20 - I24)
Source: 2002 RI Vital Records

Adults ages 65 and older are nearly four times as likely as those ages 18-44 to die from heart disease.

Table 45. Percentage of Rhode Island adults ages 18 and older who died from heart disease*, by age, gender, and SES, 2002 **% VITAL**

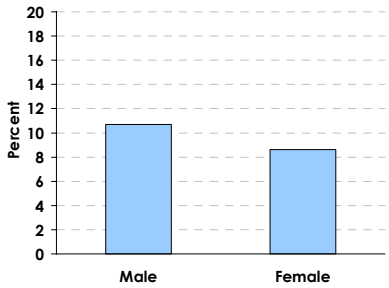
AGE

Figure 160



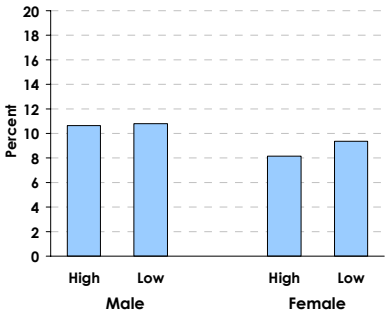
GENDER

Figure 161

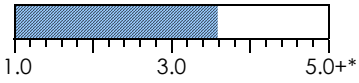


SES

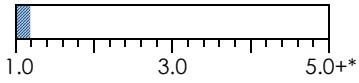
Figure 162



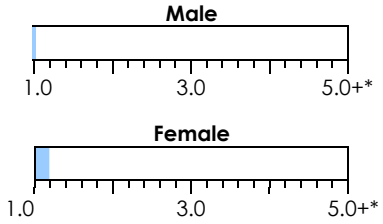
STRENGTH OF ASSOCIATION



STRENGTH OF ASSOCIATION



STRENGTH OF ASSOCIATION



Note: See Methods page 16 for definitions of higher SES and lower SES.
* Ischemic heart disease (ICD10 codes: I20 - I24)
An odds ratio measures the strength of association where ~1.5 is weak, ~3.5 is moderate, and 5.0+ is strong.
Source: 2002 RI Vital Records

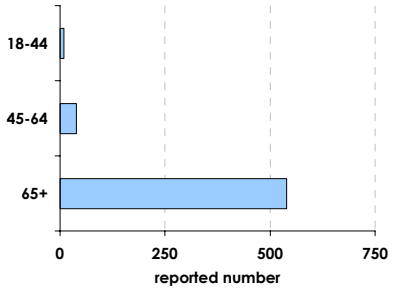
Stroke: Burden

In 2002, approximately 6% of RI adults died from stroke (data not shown). As with heart disease, more adults age 65 and older than adults under age 65 die from stroke.

Table 46. Reported number of Rhode Island adults ages 18 and older who died from stroke*, by age, gender, and SES, 2002 **# VITAL**

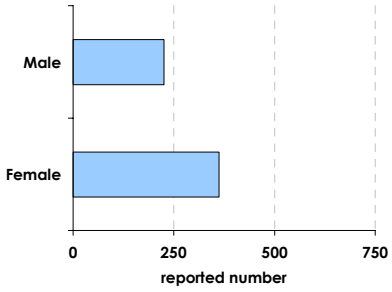
AGE

Figure 163



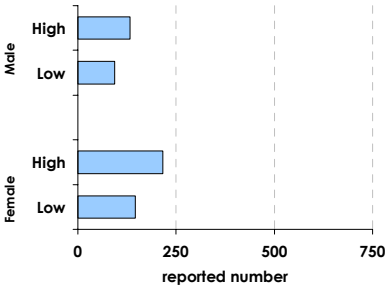
GENDER

Figure 164



SES

Figure 165



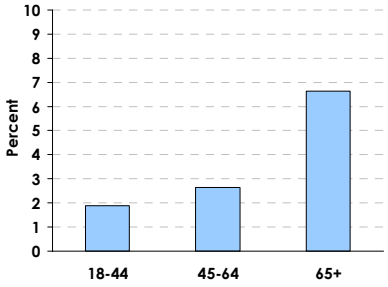
Note: See Methods page 16 for definitions of higher SES and lower SES.
* Stroke (ICD10 codes: I60 - I69)
Source: 2002 RI Vital Records

Adults ages 65 and older are nearly four times as likely as those ages 18-44 to die from stroke.

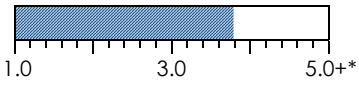
Table 47. Percentage of Rhode Island adults ages 18 and older who died from stroke*, by age, gender, and SES, 2002 **% VITAL**

AGE

Figure 166

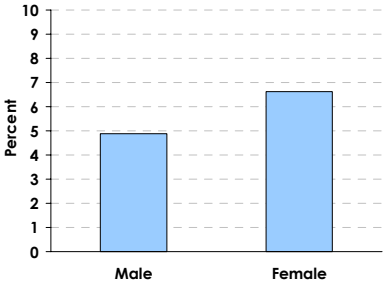


STRENGTH OF ASSOCIATION

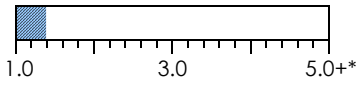


GENDER

Figure 167

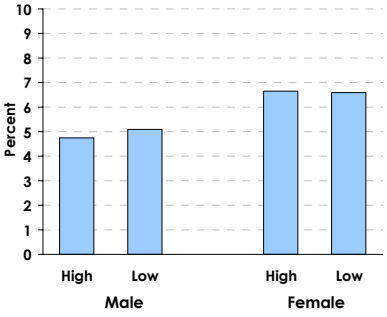


STRENGTH OF ASSOCIATION



SES

Figure 168



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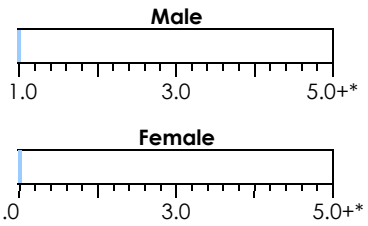
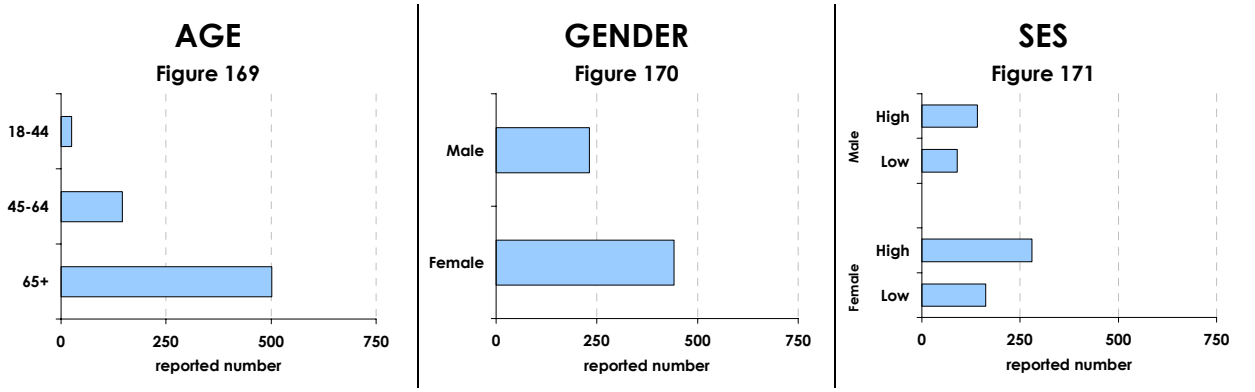


Note: See Methods page 16 for definitions of higher SES and lower SES.
* Stroke (ICD10 codes: I60 - I69)
An odds ratio measures the strength of association where ~1.5 is weak, ~3.5 is moderate, and 5.0+ is strong.
Source: 2002 RI Vital Records

Site-specific Cancers: Burden

In 2002, close to 7% of RI adults died from cancers for which obesity is a risk factor (data not shown). These include cancer of the gallbladder, colon, endometrium, kidney, esophagus, ovary, pancreas, and postmenopausal breast cancer. A majority of the persons who die from these cancers are over age 65. More women then men die from cancers for which obesity is a risk factor.

Table 48. Reported number of Rhode Island adults ages 18 and older who died from site-specific cancers*, by age, gender, and SES, 2002 **# VITAL**



Note: See Methods page 16 for definitions of higher SES and lower SES.
* Cancer of the gallbladder (ICD10 code: C23), colon (C18), endometrium (C530), kidney (C64), esophagus (C15), ovary (C56), pancreas (C25), and postmenopausal breast cancer (C50)
Source: 2002 RI Vital Records

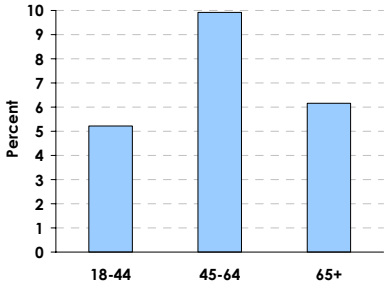
Adults ages 45-64 years are twice as likely as those ages 18-44 to die from site-specific cancers associated with obesity.

Table 49. Percentage of Rhode Island adults ages 18 and older who died from site-specific cancers*, by age, gender, and SES, 2002

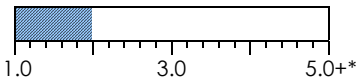
% VITAL

AGE

Figure 172

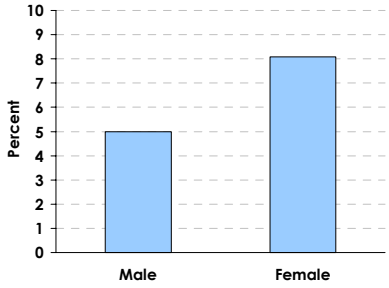


STRENGTH OF ASSOCIATION

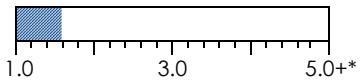


GENDER

Figure 173

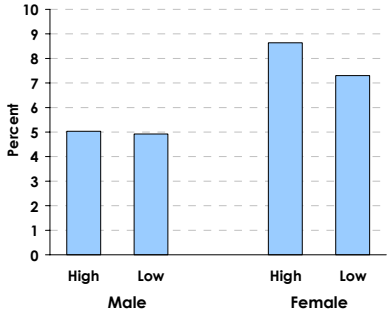


STRENGTH OF ASSOCIATION

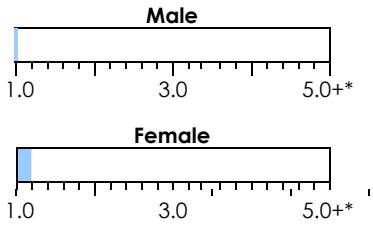


SES

Figure 174



STRENGTH OF ASSOCIATION



Note: See Methods page 16 for definitions of higher SES and lower SES.
* Cancer of the gallbladder (ICD10 code: C23), colon (C18), endometrium (C530), kidney (C64), esophagus (C15), ovary (C56), pancreas (C25), and postmenopausal breast cancer (C50)
An odds ratio measures the strength of association where ~1.5 is weak, ~3.5 is moderate, and 5.0+ is strong.
Source: 2002 RI Vital Records

DISCUSSION

The most recent data for RI (2002), based on self-reported measures of height and weight, show that 38% of RI adults ages 18 and older are overweight. This is similar to the prevalence of overweight among U.S. adults ages 18+ (37.0%). The prevalence of obesity among RI adults is slightly lower than that reported for the nation. Nationally, an estimated 22% of adults are obese (BRFSS, 2002) and 18% of RI adults are obese (RI BRFSS, 2002).

According to self-reported measures of height and weight for youth in grades 9-12, 15% of RI teens are at risk of overweight and 10% are overweight (RI YRBSS 2003). Findings on overweight among RI adolescents are lower than national estimates of overweight based on clinical height and weight measurements. Nationally, 16% of children ages 6 through 19 years are overweight. Differences in state and national estimates reflect, in part, different methods used to collect data on weight status and different samples.

As noted earlier in this report, overweight and obesity are the net result of an excess of energy consumption over expenditure. Many factors contribute to overweight and obesity but the primary determinant is decreased physical activity without an appropriate reduction in food intake.

RI data indicate disparities in the prevalence of overweight and obesity by sex and socioeconomic status. Adult men are nearly two times as likely to be overweight or obese as adult women. On the other hand, low-income women are nearly two times as likely to be obese as high-income women. The proportion of men who are obese does not vary significantly by SES. The high prevalence of overweight and obesity among children enrolled in the RI WIC program is alarming. As noted earlier in this report, overweight in children should be considered a chronic health condition that may require long-term medical management.

Many Rhode Islanders have a diet that falls short of the national recommendations to eat five fruits and vegetables daily. On the other hand, low-income Rhode Islanders are less likely to get sufficient regular exercise than their more affluent peers. Low-income men are nearly three times as likely as high-income men to report not doing any physical activity in the past month. Findings for women are similar, with low-income women about three times as likely to be physically inactive as high-income women. Adolescent-specific data show that one-third of RI youth ages 13 to 17 years do not engage in physical activity that promotes long-term health (34.7%) and one-third watch TV three or more hours a day (32.3%).

Health Costs and Health Risks

Overweight and obesity are urgent health problems facing RI and the health care costs associated with this chronic condition are not trivial. State-level estimates of annual medical expenditures attributable to obesity in RI are approximately $305 million (2003 dollars; Finkelstein et al., 2004).

Consider the following health risks associated with overweight and obesity:

- Overweight people are more likely to have high blood pressure, a major risk factor for heart disease and stroke, than people who are not overweight. Very high blood levels of cholesterol can also lead to heart disease and often are linked to being overweight. Being overweight also contributes to sudden death from heart disease or stroke without any signs or symptoms. The good news is that losing a small amount of weight can reduce Rhode Islanders' chances of developing heart disease or a stroke.
- Overweight people are twice as likely to develop type 2 diabetes compared to normal weight people. Type 2 diabetes is a major cause of early death, heart disease, stroke, and blindness. Rhode Islanders can reduce their risk of developing type 2 diabetes by losing weight and exercising more.
- Gallbladder disease and gallstones are more common if a person is overweight. The risk of gallbladder disease increases as one's weight increases.
- Osteoarthritis is a common joint condition that most often affects the joints in your knees, hips, and lower back. Carrying extra pounds increases the risk of osteoarthritis by placing extra pressure on these joints and wearing away the cartilage (tissue that cushions the joints) that normally protects them. Weight loss can decrease stress on the knees, hips, and lower back and may improve the symptoms of osteoarthritis.
- Several types of cancer are associated with being overweight. In women, these include cancer of the uterus, gallbladder, cervix, ovary, breast, and colon. Overweight men are at higher risk for developing colorectal cancer and prostate cancer. For some types of cancer, such as colon or breast, it is not clear whether the increased risk is due to the extra weight or to a high-fat, high-calorie diet.

In RI, diabetes occurs more frequently in adults over age 65, although diabetes is also an issue for adults ages 45 to 64. RI data also showed that diabetes prevalence is significantly higher among adults who are obese, with 13.6% of adults who are obese reporting that they have diabetes compared with 4% of adults who are not obese (data not shown in this report). Once considered rare, type 2 diabetes and primary hypertension in children have become increasingly common in association with childhood overweight. In addition, the risk of type 2 diabetes and hypertension in children increases as body mass index (BMI) increases, underscoring the importance of preventing overweight at the earliest possible ages.

Initiative for a Healthy Weight (IHW)

Beginning in 2000, RI established the IHW Program to create policies and environmental supports that promote behavior change with the goal of reducing the burden of overweight and obesity in the state. In the next four years (2004-2008) IWH will work with community members to implement targeted interventions that will increase physical activity, improve nutrition, reduce sedentary behaviors, and increase breastfeeding rates and duration. The program also will launch a statewide social marketing campaign.

Outcome data are key to evaluating intervention effectiveness. Therefore, IWH will work with its partners to assess and expand existing data systems, as needed.

Recommendations

The Burden of Obesity in Rhode Island responds to the need to better understand the prevalence of overweight and obesity and disparities in prevalence. These data will help IHW to better plan and evaluate interventions and social marketing strategies. But more can be done to improve Rhode Island's surveillance systems.

As a first step, the RI Department of Health needs to explore the feasibility of collecting data with actual height and weight measurements to calculate body mass index, wherever and whenever height and weight are measured. This includes well-child visits, school physicals, doctor's offices, and worksites. Currently, only self-reported height and weight data are available in the BRFSS and YRBSS.

Second, RI surveillance systems need to set specific targets for sampling racial and ethnic minority groups that will produce reliable information on a range of health issues.

Third, RI surveillance systems should systematically monitor environmental factors and policy measures relevant to reducing the obesity epidemic, such as access to safe places for exercise, and availability and cost of healthy food choices.

Fourth, data collected for measuring and evaluating interventions need to be linked to statewide and town-level data on the prevalence of overweight and obesity.

Limitations

There are a few limitations to this study that are important to acknowledge.

First, the 2002 RI BRFSS measured physical activity for the past month, rather than the past week, making comparisons with national data difficult. Measuring physical activity more accurately is important. A sedentary lifestyle presents a serious and growing concern for Rhode Islanders. Less active, less fit persons have a 30 to 50% greater risk of developing high blood pressure. Exercise also reduces the risk of heart disease in adults and in children.

Second, RI hospitalization and death data must be interpreted with caution. Data on hospitalizations and death do not contain information on whether overweight or obesity was a contributing factor to a specific health problem. Many factors contribute to chronic conditions that are exacerbated by large weight gains.

Conclusion

This surveillance report presents a snapshot of the prevalence of overweight, obesity, poor diet, physical inactivity, breastfeeding patterns, and obesity-related chronic diseases in RI. The real value of the report will be realized when data from subsequent years show that RI has made progress in reversing current statistics on overweight and obesity.

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